AEROSOL AGE

THE MAGAZINE OF PRESSURE PACKAGING

1959-1960 AEROSOL BUYER'S GUIDE

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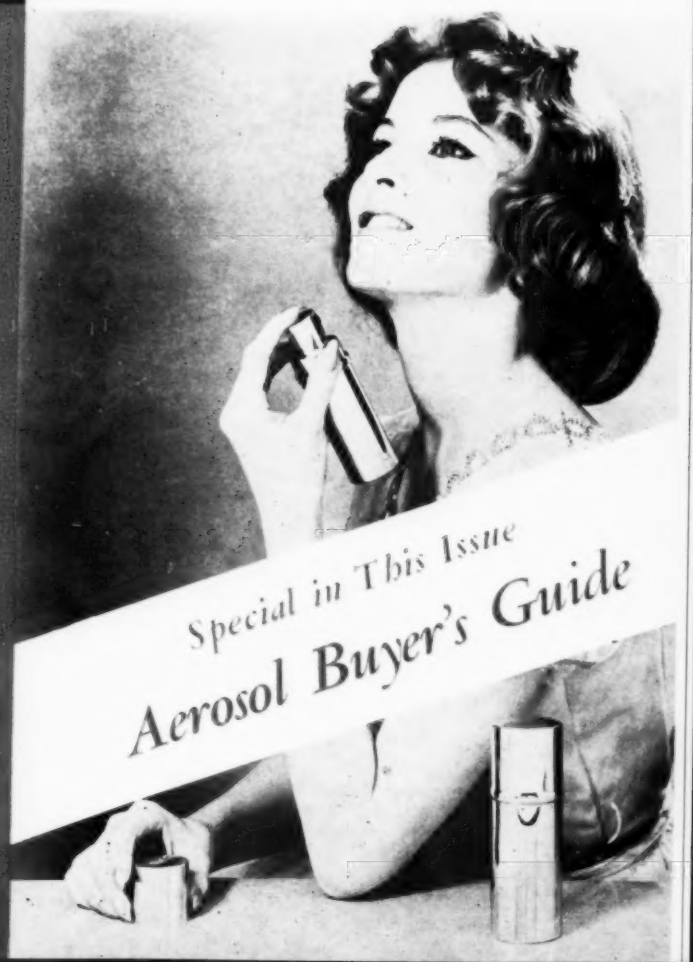
Armstrong's Pharmaceutical Line

Quality Control With Foods

Butane-Propane Propellants . . . II

Standardization for the Industry



OCTOBER, 1959

. . . HIGH SPEED LINE FILLS 120 CANS PER MINUTE!

st

NOW—

THE FIRST GLASS ENCLOSED SANITARY HIGH SPEED LINE FOR PRESSURIZED FOOD PRODUCTS . . .

An all-stainless-steel line for loading pressurized food products in aerosol containers under sanitary conditions is now in operation at Stalfort's modern Pressure-Pak plant. Completely segregated in a glass-enclosed area, this line is dismantled and sterilized before and after each production day. Any food product suitable for aerosol dispensing, even powder, can be economically handled in this area.

Three other high-speed lines are available for loading metal or glass aerosol containers that do not require completely sanitary conditions.

Stalfort, the country's largest filler, can also load liquids, waxes, or creams in conventional glass or metal containers.

JOHN C. STALFORT & SONS, INC.

Established in 1868

321 W. Pratt Street, Baltimore 1, Md.

Young companies grow fast in the aerosol field

...with A-R-C...the valves that are

ONE STEP AHEAD

OF ALL OTHERS...IN SALE APPEAL

An Aerosol valve, as we see it, is not merely an addition to the can. It's a vital, integral part of the product itself, and as such, MUST be engineered to standards consistent with the quality of the product.

For that reason, A-R-C has always maintained controlled-quality manufacturing specifications. We have kept our machines and equipment up to the foremost lines of mechanical and scientific progress. We have instituted methods of automation that have reduced margin for error to an absolute minimum . . . and we have always staffed complete product-analysis and "trouble-shooting" laboratories — to serve the pressurized packaging needs of our customers more effectively and more profitably.

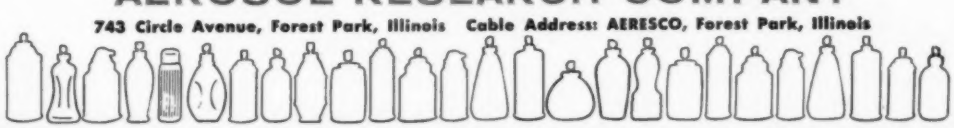
As a result of this continuing program, A-R-C valves are not "just as good" as any other valve. They are **one step ahead** . . . engineered to improve the performance, saleability and profit of all types of Aerosol products. Write, wire or phone today for information on how Aerosol Research can solve your valve needs — best!

Check these A-R-C features:

- **THE MOST COMPLETE LINE OF AEROSOL VALVES FOR SPRAY, FOAM & GLASS BOTTLE PRODUCTS**
- **NEW "MIST-MIZER" TIP FOR ULTRA-LOW PRESSURE AND WATER-BASE FORMULATIONS**
- **DIRECTIONAL, FINGER-TIP OPERATION**
- **AUTOMATIC INSPECTION OF EACH INDIVIDUAL VALVE**
- **WORLD'S FASTEST PRESSURE-FILL VALVE**
- **PROVED SUPERIOR BY HUNDREDS OF MILLIONS IN USE**

AEROSOL RESEARCH COMPANY

743 Circle Avenue, Forest Park, Illinois Cable Address: AERESCO, Forest Park, Illinois



VING HUNDREDS OF MILLIONS OF SATISFIED USERS . . . ON THOUSANDS OF PRODUCTS . . . FROM HUNDREDS OF COMPANIES

ANOTHER FIRST by **METAL FAB**

IT'S NEW...
IT'S NEW...
IT'S NEW...

Trigger-Tip
aerosol actuator

IT'S NEW!

METAL FAB'S OWN LOW-COST AEROSOL PERFUME DISPENSER WITH TRIGGER-TIP ACTUATOR — IN GLAMOROUSLY STYLED OUTER CASES (IN STOCK OR TO YOUR SPECIFICATIONS) *(Shown in hand above)*

SPECIFICATIONS		
Cartridge	Stainless Steel	Glass
Contents	10 cc	10 cc
Height	2½"	3"
Diameter	½"	⅞"
Finishes	Polished Brass, Textured, Brushed, Enameled, Silk Screened, Debossed, Embossed or to your specifications.	

- Just press and spray
- No cap to remove
- Can't be accidentally dispensed
- New never-before-seen actuating feature (patent pending)
- Plastic actuating button in aluminum shell
- Fits all self-contained aerosol units (10 cc, 16 cc, 22 cc, 2 oz. and up)
- Choice of finishes
- Can be used with either metered or unmetered valve
- Low Cost

2 Ounce Dresser-Vanity Size Also Available in any design or specification, with new Metal Fab TRIGGER TIP actuating feature.

Patent Pending

National Sales Agents • **MONROE-DANFORD & CO.** • 50 48th St., P.O. Box 807, Weehawken, N. J.

Special Coatings and finishes on Containers and other Aerosol Components

Silk Screening • Printing on Containers

Metal Fabrications INC.

P.O. BOX 808 • WATERBURY, CONN.

THIS MONTH'S COVER

Typical of newer container designs for "luxury" toilet goods is this refillable cologne container introduced by Risdon Manufacturing Co., Naugatuck, Conn. Called the "Vaniti-Mist", it comes in one or two ounce sizes. This general type of metal container, developed by Risdon, VCA, Richford, Metal Fabrications, Peerless Tube, Emson Research, and other suppliers, is credited with providing the major impetus behind the big surge in aerosol cologne sales this year.

OCTOBER, 1959 VOL. 4, No. 10

AEROSOL AGE

The magazine of pressure packaging

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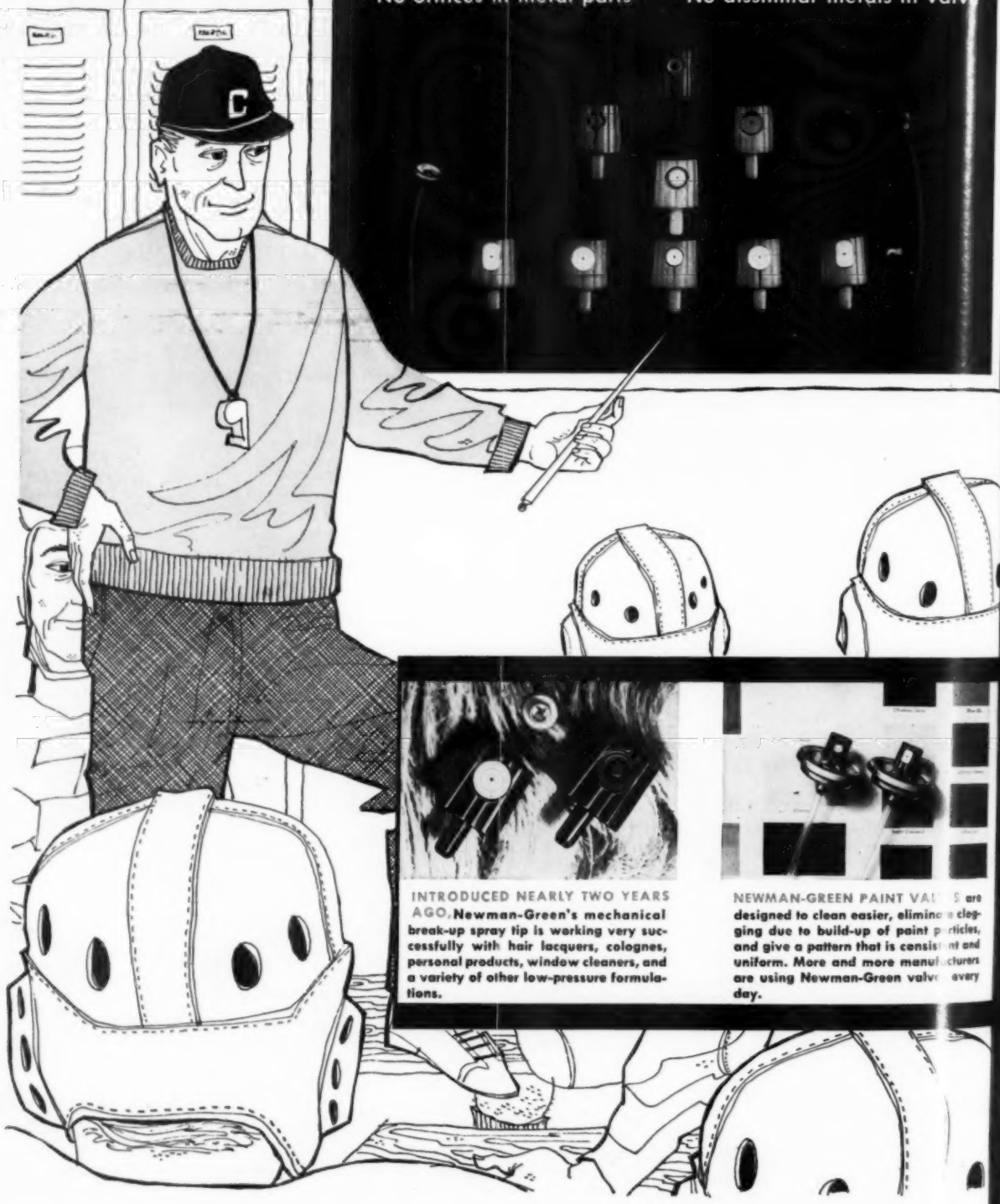
OFFICIAL SCOUTING REPORT

ELEVEN BIG FEATURES

- 360° Twist Top
- Fills Faster
- Tips Interchangeabl
- Cleans Easily
- Tips go on Easily
- Contoured Top
- Tubes Swedged on
- Uniform Parts
- For Bottle or Can
- No orifices in metal parts
- No dissimilar metals in valv



INTRODUCED NEARLY TWO YEARS AGO, **Newman-Green's mechanical break-up spray tip is working very successfully with hair lacquers, colognes, personal products, window cleaners, and a variety of other low-pressure formulations.**

NEWMAN-GREEN PAINT VAL S are **designed to clean easier, elimin clogging due to build-up of paint p rticles, and give a pattern that is consis nt and uniform. More and more manuf cturers are using Newman-Green valv every day.**

NEWMAN-GREEN AEROSOL VALVES CHAMPS IN OPERATION AND QUALITY

Use Newman-Green Valves For Mistier Sprays, Real Quality, More Dependable Operation

The built-in quality available only in Newman-Green aerosol valves includes:

- *No small orifices drilled in metal parts.*
- *Delivery tubes swedged on—not slipped over —valve body.*
- *Spray patterns can be varied completely in seconds by changing only spray head.*
- *All metering orifices and spray heads are easily accessible for cleaning.*

In addition, the extra-plus you get from Newman-Green's two-tone spray tips (designed to blend or contrast with your label design) is at no extra cost. Such color contrasting assures quick, positive location of orifice opening and easier use of your aerosol package.

The Newman-Green valve design with built-in quality helps you cut production costs, assures better dispensing of your product with a more uniform pattern. Models are available for all types of metal or glass containers.

Always think first of Newman-Green for help in solving your aerosol valve designing, engineering and manufacturing problems. You will get both service and unsurpassed quality when you call your Newman-Green representative.

INSIST ON NEWMAN-GREEN VALVES. You gain a competitive edge from built-in engineering quality that can't be matched in the aerosol industry. Service is prompt, and production geared for high volume.

Newman-Green offers a complete line of aerosol valves. For latest price schedules and/or free samples, please fill and send in this coupon.

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Company_____ Address_____

City_____ State_____ (Country)_____

Intended valve application_____

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Improving aerosol techniques thru basic research

Advancing the aerosol idea thru clinics and seminars

Guiding prospects to profits thru market surveys

Probing client problems thru Du Pont facilities

Supplying on-the-spot aid thru technical service

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You get more than a premium-quality propellent when you buy Freon*. . . *far* more. For Du Pont provides the most comprehensive customer services in the industry.

DEVELOPMENT—Du Pont has skilled scientists to help directly with your product-improvement projects. The facilities of the "Freon" Sales Service Laboratory are available to assist with your problems. The laboratory team also develops improved formulations and techniques and donates the results to the aerosol industry.

PRODUCTION—Du Pont know-how and experience come to you wherever you are, whenever you need help on production techniques or problems . . . through a large team of technical representatives. Your Du Pont service engineer is trained to help you cut costs, too. Call him any time.

MARKETING—Du Pont regularly conducts surveys, clinics, and seminars to bring you up-to-date market information on aerosols. And Du Pont national advertising promoting the aerosol packaging idea helps assure you a steady flow of new customers.

To take advantage of any of these valuable sales-building services, just call or write the Du Pont office nearest you. Be sure to buy "Freon"—recognized throughout industry for quality, performance and superior properties—for *all* your propellent needs. You'll get virtually local delivery from three plants and a country-wide network of warehouses.

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HERE AT FRITZSCHE BROTHERS we have the solution to a thousand and one problems in this field—not on file, necessarily, but in the cumulative *centuries of experience* represented by our staff of perfume specialists. These dedicated men, working in modern laboratories with top quality materials, are backed by FRITZSCHE'S 88 year-old *tradition of service*. No wonder countless firms have found complete satisfaction—without cost or obligation—in consulting us on questions of basic odorants, deodorants, and "custom blended" fragrances for aerosols. Because we *specialize* in odors, why not let *us* do the worrying? Just contact our local representative or write direct.

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The answers to aerosol valve needs are being developed and perfected daily at Precision . . .

THIS MEANS ADDITIONAL PRODUCT SALES FOR YOU!

This new Precision spray valve, in addition to its slanted finger rest has an imprinted arrow in a second color to show the direction of flow.

A Precision stream spout for dispensing any product, regardless of viscousity, that will pour. Currently most toothpaste and syrup manufacturers, are using this practical and attractive unit.

Upside down spout, designed for toppings is far simpler to use than ordinary spouts and in addition is far easier to keep clean. Just lift and hold under the faucet.

This graceful spout has proven to be a profitable way of dispensing pharmaceuticals and cosmetics. Combined with Precisions metering valve, it dispenses a pre-determined amount with a touch.

• At Precision there is a continuing program of research and development, for each day brings new products to be packaged in aerosol containers. The success of aerosols, is based on functional design and attractive appearance for these two go hand in hand to improve dispensing and increase sales.

Perhaps your product, whether it be dispensed as a foam, a spray, a drop or a stream, should be adapted to an aerosol package. Aerosols have proven, an increase in sales because of appearance, economy and simplicity of use. Precision engineers will be most happy to talk with you.

PRECISION VALVE CORPORATION, 700 NEPPERHAN AVENUE, YONKERS, N. Y.

For beauty and the best . . .

Count on Crown

To succeed in today's competitive markets, your products must be attractively packaged. Assure yourself of the beautiful best in closures and liners by making use of the vast experience which Crown places at your service.

Crown can supply caps to fit any need: Meritseal, the eye-catching cosmetic-type closure; CT caps in a complete range of sizes; lug caps with live rubber seals. And Crown is well-equipped to develop new types if you require them.

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You give top performance to aerosol products of all types when you choose your propellent from Pennsalt's complete line of Isotrons. Quality that meets or surpasses all accepted industry standards is assured by rigidly controlled manufacturing and constant testing. Isotrons are nonirritating, noncorrosive, nonflammable . . . stable even in the alcoholic solutions required by many formulas.

And Pennsalt's Isotron Laboratory is ready to help you with *personalized* assistance in adapting your formulation, choosing the correct container, valve and propellent, and testing performance. Write or call Pennsalt today.

ISOTRON 11	(CCl_3F)
ISOTRON 12	(CCl_2F_2)
ISOTRON 22	($CHClF_2$)
ISOTRON 113	(CCl_2F-$CClF_2$)
ISOTRON 114	($CClF_2$-$CClF_2$)

Isotron Department 235
PENNSALT CHEMICALS CORPORATION
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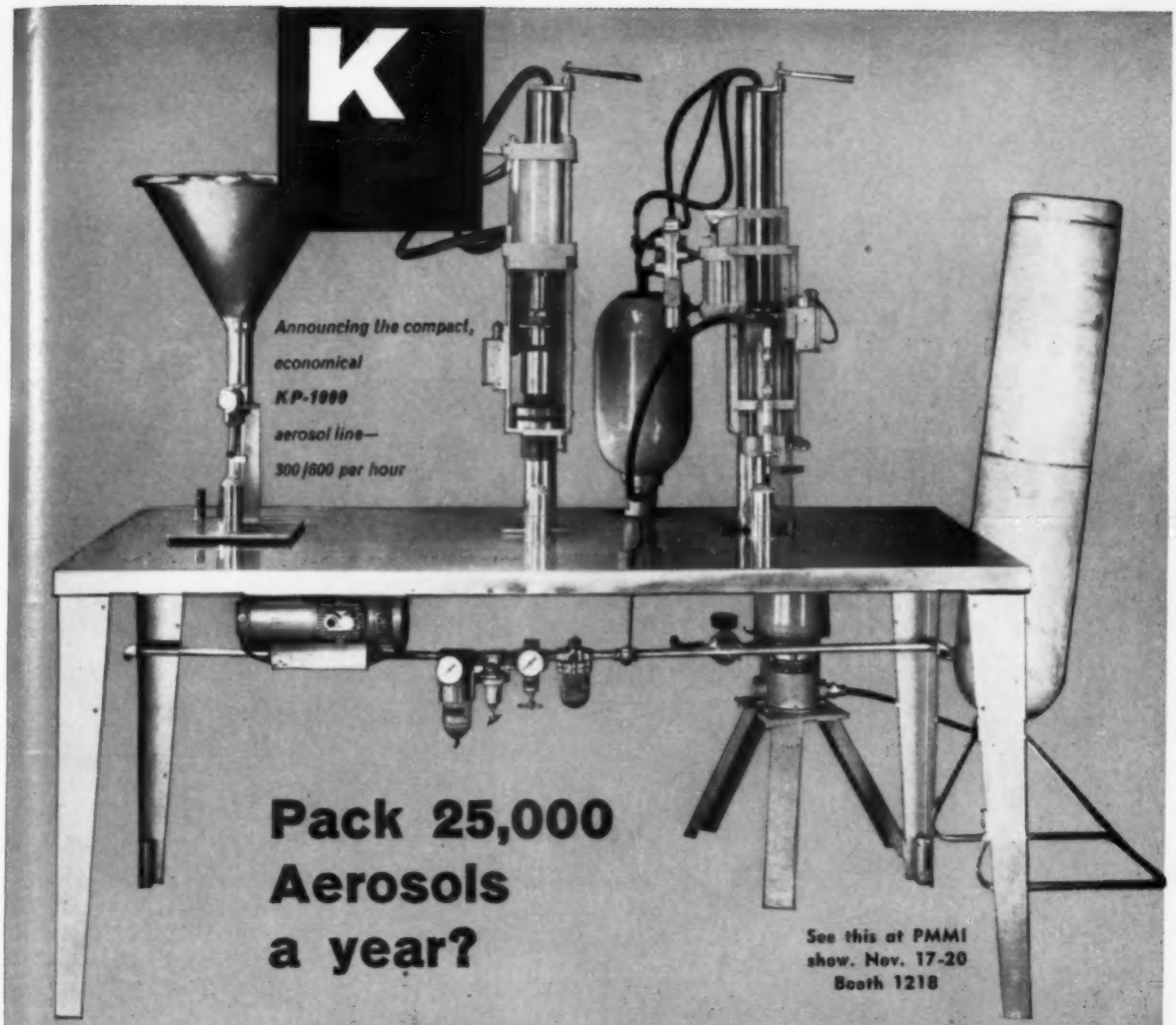


Pack 25,000 Aerosols a year?

See this at PMMI show. Nov. 17-20 Booth 1218

THIS NEW LINE CAN MAKE MONEY FOR YOU!

Easy to operate, compact yet complete, the semi-automatic KP-1000 comprises a piston-type filler, a vacuum crimper, and a pressure filler. Whether or not you are packaging aerosols now, or only thinking about it, you should get the facts on this economical quality equipment.

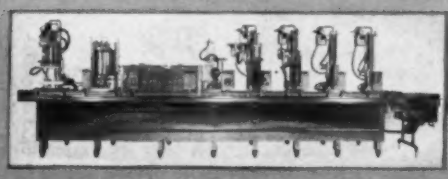
Mojonnier lines have filled *and are now filling*—more aerosol cans than any other make of equipment. As the most experienced specialists in aerosols, Mojonnier offers you a single source, with undivided responsibility, for all aerosol packaging equipment. Every unit is engineered to function with the others.

For large-volume production, Mojonnier automatic lines have capacities up to ten million aerosols a year.

Laboratory equipment, for pre-testing your package, can be rented and the modest rental applied on the purchase.

Get all the facts fast!

To have an area sales engineer call on you promptly, put in a call to us, or write today. Kartridg-Pak Co. Dept. A, Franklin Park, Illinois. Address 9151 W. Fullerton Ave., or telephone Chicago, NAtional5-8270.



NEW "800" LINE, the automatic single straight line. Also available as double track line for larger volume. Completely engineered throughout.

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MALATHION • DDT • CHLORDANE • PYRETHRUM • DIELDRIN

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the answer to all
LIQUID, CREAM and FOAM
pressurized dispensing

Clayton

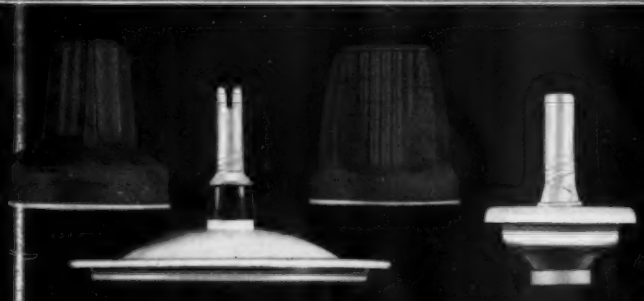
"NOZZLE DOWN"
dispensing valves and covers

TIME TESTED AND PROVED
ON HUNDREDS OF MILLIONS OF CONTAINERS

COSMETIC, PHARMACEUTICAL, PERSONAL, AUTOMOTIVE, HOUSEHOLD — OR FOOD . . . whatever your product, liquid, cream or foam . . . CLAYTON NOZZLE DOWN VALVES will dispense it more efficiently, more naturally . . . pointing the product where you want it . . . never clogging, always staying intact. Various types and designs are available with suitable flow rates and materials to meet your specific product requirements.

Superior in production, all CLAYTON VALVES assure uniform gassing . . . pressure-fill at highest speeds. No parts to assemble in your plant. Dependable in shipment . . . components can't come apart. Distinctive, patented positive-action screw covers keep your product safe.

CLAYTON NOZZLE-DOWN VALVES ARE THE MOST FAMILIAR, ACCEPTED, PREFERRED AND CONSISTENTLY BOUGHT VALVES FOR FOAM PRODUCTS . . . THE MOST EFFECTIVE FOR ALL CREAM AND LIQUID PRODUCTS!



ALL VALVES AVAILABLE WITH COLOR-ENAMELED MOUNTING CUPS. HIGHEST QUALITY, CHEMICAL AND CORROSION-RESISTANT INTERIOR COATINGS!

DIP TUBE VALVE
The best available! Dispenses with forward or downward push. Gasses and dispenses uniformly. Pressure fills at highest speeds. No metal valve parts exposed to product.

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SURFACE-ACTIVE AGENTS

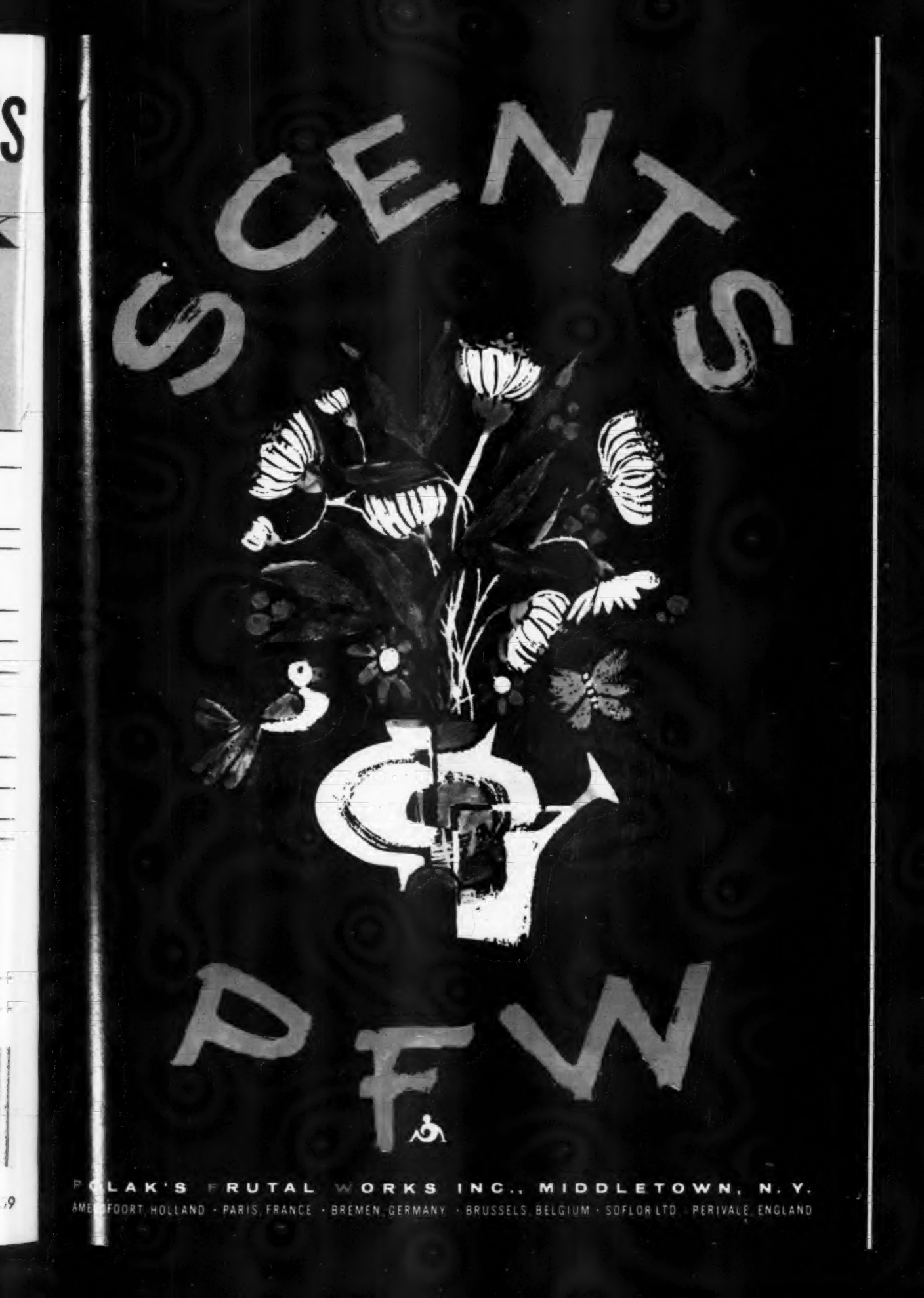
YOU CAN ALWAYS RELY ON ONYX BY ONYX

for the particular surfactant that fits your needs. Available in large commercial quantities or for research purposes, Onyx surface-active agents fulfill a wide variety of uses, too numerous to list in detail. Below is a partial listing of the wide range of products developed by the Onyx Oil & Chemical Co. over fifty years of research and production in the field of organic chemicals. For complete data on these and other Onyx products write for our latest catalog SA. A member of our laboratory staff will be pleased to consult with you about a specific problem... at no obligation of course.

PRODUCT		DESCRIPTION	PERCENT ACTIVE	PHYSICAL STATE	APPLICATION
QUATERNARIES	Ammonyx 4	Formulated stearyl dimethyl benzyl ammonium chloride	25	Paste	Anti-static and conditioning agents for cosmetics
	Ammonyx 4002	Stearyl dimethyl benzyl ammonium chloride	100	Powder	
	Ammonyx CO	Cetyl dimethyl amine oxide	20	Liquid	Wetting, emulsifying
	BTC 824	Alkyl dimethyl benzyl ammonium chloride	50	Liquid	Disinfectant, deodorant, germicide, fungicide
	BTC 927	Alkyl dimethyl dimethylbenzyl ammonium chloride	50	Liquid	
	Onyxide Series	Alkenyl dimethyl ethyl ammonium bromide	75	Paste	Algicide
	Tetrosan 3, 4D	Alkyl dimethyl 3,4 dichlorobenzyl ammonium chloride	60	Liquid	Disinfectant, deodorant, germicide, fungicide
NON-IONICS	Neutronyx 600 Series	Alkylphenol polyglycol ether containing from 4 to 30 moles ethylene oxide	100	Liquid	Detergent, wetting, emulsifying, dispersing
	Onyx-ol 336 & Onyx-ol 345	Lauric acid diethanolamine condensate	97	Liquid	Foam stabilizer, detergent, wetting, dispersing and thickener
	Onyx-ol 368	Lauric acid isopropanolamine condensate	97	Powder	Foam stabilizer
	Super Amide Series	High activity diethanolamine condensates	75-90	Liquid to solid	Foam stabilizers, emulsifiers and thickeners
SULFONATED OILS		Castor, soya, sperm, tallow	Various	Liquid	Detergent, dispersing
LAURYL SULFATES	Maprofix ES	Sodium lauryl ether sulfate	28	Liquid	Detergent, wetting, foaming and dispersing agents for industrial, cosmetic and pharmaceutical applications
	Maprofix LK	Sodium lauryl sulfate	90	Powder	
	Maprofix WA Series	Sodium lauryl sulfate	30	Liquid to paste	
	Maprofix 563	Sodium lauryl sulfate	99	Powder	
	Maprofix NH	Ammonium lauryl sulfate	30	Liquid	
	Maprofix TLS Series	Triethanolamine lauryl sulfate	40-75	Liquid to paste	
ANTI-STATIC AGENTS	Aston 108 & Aston LT	Thermosetting Polyamine	20	Liquid	Durable anti-static agents
	Aston R	Cationic polyamine	50	Paste	Anti-static agents, water and solvent soluble
	Aston AP	Cationic polyamine	50-100	Liquid	

Ask the man from Onyx...

ONYX CHEMICALS
Jersey City 2, N. J.



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Ucon brand propellants put action in products

Why don't you discover Ucon Propellant service, too?

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Division of Union Carbide Corporation
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Make Stainless (Insecticidal) Aerosols

With MGK Pyrocide 175 RC

As ordinarily sprayed, aerosols made with MGK Pyrocide 175 RC will not stain pure white fabrics. Saturation tests show no detectable stain after 4 hours exposure to light.

Pyrocide 175 RC attains this high clarity with no loss of knockdown strength and no loss of stability.

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McLAUGHLIN GORMLEY KING CO.
1715 S.E. Fifth Street • Minneapolis, Minnesota

● Please send full information regarding use and price of MGK Pyrocide 175 RC.

*Name*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

INDUSTRY CALENDAR

CSMA Aerosol Industry Technical Clinic, New York, Hotel McAlpin, Oct. 17.

National Paint, Varnish & Lacquer Association, annual convention, Chalfonte-Haddon Hall, Atlantic City, N. J., October 19-21.

National Agricultural Chemicals Association, Sheraton Lick Hotel, French Lick, Ind. .....Oct. 21-23

CSMA Aerosol Industry Technical Clinic, LaSalle Hotel, Chicago, Oct. 24.

Canadian Manufacturers of Chemical Specialties, second annual meeting, Royal York Hotel, Toronto, Nov. 2-4.

Packaging Institute, Annual National Packaging Forum, Hotel Statler, New York.....Nov. 16-18

Packaging Machinery Manufacturers Institute, trade show, New York Coliseum, New York. Nov. 17-20

Toilet Goods Association, winter meeting of Scientific Section, Waldorf Astoria Hotel, New York Dec. 1

Chemical Specialties Manufacturers Association, 45th annual meeting, Mayflower Hotel, Washington, D. C.....Dec. 7-9

from the EDITOR'S MAILBAG

To the Editor:

May we draw your attention to the article on page 30 of your September issue entitled 'Aerosols Expected to Take Growing Percentage of Hair Coloring Market", in which you have quoted from the Market Reports —*Redbook* survey of March 1959. The article states "Roux Distributing Company's entry, 'Color Curl' (in six shades) appeared in February 1958. Described as the first *metallic* hair color spray", etc. The original survey correctly stated, "described as the first *non-metallic* hair color spray".

The *absence* of metallic powder is a major selling factor of this product, and earns for "Color Curl" a far more favorable consumer reaction in relation to other spray-type colorings which do contain metallic powder.

Further, as we advised *Redbook* Maga-

(*Continued on Page* 133)

In the Spotlight this month

- **Aerosol Buyer's Guide-1959-1960** . . . The third annual buyer's directory, devoted exclusively to the pressurized packaging field, is the feature of this issue. Alphabetical listings of firms offering services, components, raw materials, and equipment begin on page 35.

- **Armstrong Laboratories' Pharmaceutical Installation** . . . A New England filler with a fine reputation for quality aerosol pharmaceutical filling reveals some of his techniques and specially designed equipment to **Aerosol Age**. Photographs and story begin on page 64.

- **Butane and Propane as Aerosol Propellants (Part II)** . . . Second of a continuing series on the use of hydrocarbons as aerosol propellants. This installment discusses some of the safety factors, warehousing problems and other complications. Contributions from A. H. Lawrence of DuPont and Montfort Johnsen of Peterson Filling highlight the symposium, which begins on page 67.

- **Quality control at Reddi-Wip** . . . Food filling's major problem, quality control on the production line, is treated in detail by Dr. Harry Pyenson, research director of the leading marketer of such products, on page 69.

- **Standardization for the Aerosol Industry** . . . An important paper from the Paris meeting of the European Federation of Aerosol Associations, this one attempting to find a practical way to effect standardization of components, begins on page 75.

6 ESSENTIAL TOOLS

TO BUILD BETTER COSMETICS AND AEROSOLS

Moisturizer

Solubilizer

Penetrant

Emollient

Liquid Lanolin

Unsaturate

AMERCHOL L-101 - - world-famous skin moisturizer of lanolin origin. Our exclusive process guarantees uncompromising quality, uniformity and dependability. • A powerful depressant of interfacial tension, excellent auxiliary emulsifier — for gloss, soft-textures, lubricity and, above all, superb emollience. An essential tool for the discriminating cosmetic chemist.

SOLULANS - - for versatility in cosmetics and aerosols try the Solulans. • Water and alcohol soluble emollient lanolin derivatives — 100% active, non-greasy emulsifiers and solubilizers of great general utility. Their fine lubricating, plasticizing and conditioning qualities are evidenced even at low, economical concentrations.

ACETULAN - - Seeing is believing — that such a beautiful, light, thin, emollient yet non-oily and penetrating liquid could ever be made from lanolin. Acetulan plasticizes, lubricates, penetrates, softens. It even controls viscosity. Acetulan spreads and disappears into skin and hair leaving a lasting soft after-feel which is truly remarkable.

MODULAN - - a chemist's improvement over nature, acetylated lanolin, our own patented product — it looks like lanolin but is astonishingly different and so much better for aerosol formulating. Non-greasy, non-tacky Modulan is lubricating, excellent for gloss, for grooming and manageability on hair. • Soluble in oils and propellents and as an added plus it's even hypo-allergenic.

VISCOLAN - - liquid lanolin — Here is dewaxed lanolin in sparkling clear, golden liquid form. Chemically identical to lanolin but dramatically superior for aerosols and other cosmetic preparations. Uniformly low odor and color, excellent oil solubility. • Offers all of the natural benefits of lanolin in intensified convenient liquid form.

POLYLAN - - combines essential polyunsaturated fatty acids in happy wedlock with selected lanolin alcohols. This emollient liquid wax ester offers the beneficial natural properties of linoleic acid with the softening, protective and conditioning activity of the most active lanolin components. Polylan is a truly elegant new cosmetic ingredient which we invite you to study in your formulations.

AMERICAN CHOLESTEROL PRODUCTS AMERCHOL

American Cholesterol Products

INCORPORATED

AMERCHOL PARK • EDISON, NEW JERSEY

References, technical data and suggested formulas available from our Research Laboratories.

CHECK *Cowles* FOR

DIETHYLTOLUAMIDE (DETAMIDE 95)

HAVE YOU CONSIDERED COWLES for N, N-diethyltoluamide? Acclaimed by scientists as the best repellent yet against most species of mosquitoes, fleas, chiggers, ticks, deer flies, biting gnats and sand flies—discovered and developed by the U.S. Department of Agriculture.

Cowles DETAMIDE 95 (minimum assay meta isomer—95%) is highly resistant to perspiration and normal wear-off. A greaseless, colorless liquid with a pleasant cosmetic fragrance—ideal in formulated products such as cosmetic creams, lotions and pressurized products.

Full technical information and prices upon letterhead request.

DETAMIDE 95 is packed in 5 gal. and 55 gal. drums—stocks available for immediate delivery.

Cowles

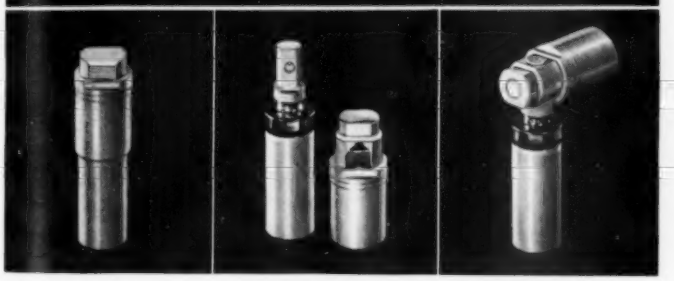
ORGANIC CHEMICAL DEPARTMENT

CHEMICAL COMPANY

Cleveland 3, Ohio

EMSON'S NEW METERED ORAL ATTACHMENTS*

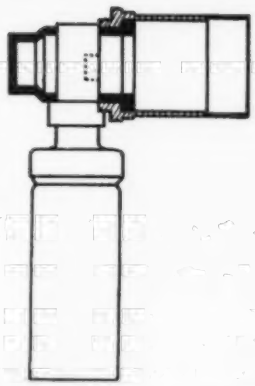
INGENIOUS, POSITIVE MEASURED DOSAGE AND DIRECTIONAL CONTROL



Complete, safe, compact package for personal use. Leakproof, dustproof, foolproof. Stainless Steel or Aluminum. 13½ or 16 cc capacities.

Attachment easily slips over the button, which is part of the valve. Always in correct position. Moulded of sturdy Super Dylan.

Operates easily in the upright position for throat or mouth spray, wash or freshener. Always handy. Delivers the same dosage every time.



- **practical**
- **profitable**
- **marketable**

Here is another example of EMSON inventiveness! Another new major development born on EMSON'S engineering boards. Like EMSON'S famous Metered Valve . . . the most widely used Metered Valve in the world . . . it is destined to be regarded as the leader of its type.

EMSON can supply you with the complete package . . . quickly, inexpensively . . . tailor-made to give your product greater consumer acceptance. Our production facilities are geared for immediate action! When you *buy* from EMSON, you *can buy* the complete package—container, valve and actuator.

NEW!
NITROGEN METERED VALVES
Phone or Write for Information

Let EMSON PRODUCE YOUR NEXT VALVE OR PACKAGE

VALVES FOR: Personal size dispensers, cans, bottles and standard 1" openings (metered or non-metered).

- Stainless steel parts.
- Doses from 35 mg to 5 cc.
- For cold or pressure filling.
- One piece, moulded, seal-proof dip tubes.

ACCESSORIES:

- Refill cartridges.
- Stainless steel, aluminum or metal containers — 10, 13½, 16 cc, 2 oz.
- Mechanical break-up actuator.
- Safety lock.
- Special actuators and caps.
- Nasal and oral attachments.

(*) Covered by U.S. and foreign patents and patents pending.

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EDison 6-2553

'ARCTON' AEROSOL PROPELLENTS

—available in Latin America now

'Arcton' Aerosol Propellents are made to a consistent high quality by Imperial Chemical Industries Limited.

'ARCTON' 11 Trichlorofluoromethane
'ARCTON' 12 Dichlorodifluoromethane
'ARCTON' 114 Dichlorotetrafluoroethane
—and mixtures of these as required.

In Latin America—where the use of aerosols is constantly expanding—if you want 'Arcton' or information about it, write to

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COLOMBIA
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Rodrigo Agudelo O, Edif. Garces, Avenida Colombia Calle 11, Oficina No. 303, Cali.
Walter Bridge & Co. Ltd., Edificio " Jenaro Gutierrez ", Calle Colombia No. 47-28, Medellin.
Tracey & Compania S.A., Carrera 44, No. 36-29, Barranquilla.

CUBA
Industrias Consolidadas de Matanzas S.A., Division Commercial " Quico ", Apartada 2876, Oficios 452, Habana.

MEXICO
I.C.I. (Export) Ltd., Sucursal en Mexico, Apartado Postal No. 10163, Xochicalco 195, Colonia Narvarte, Mexico D.F.

PERU
Imperial Chemical Industries S.A. Peruana Com. e Ind., Casilla 1688, Edificio Sanchez Moreno, Jiron Cuzco, 610-5 Piso, Lima.

URUGUAY
Industrias Quimicas Uruguayas " Duperial ", Avda. General Rondeau 2050, Montevideo.

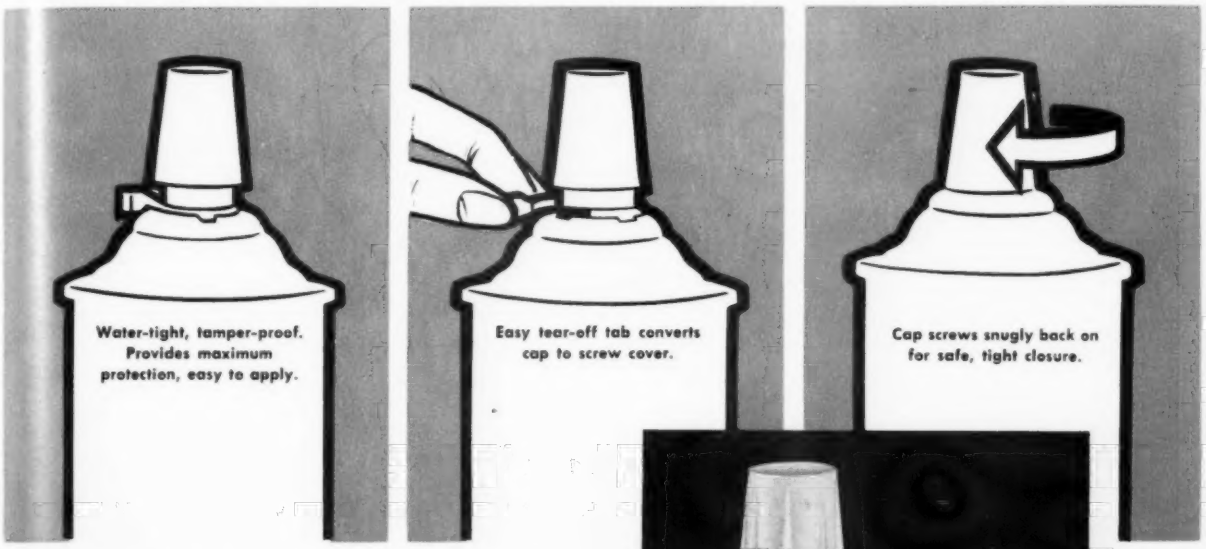
VENEZUELA
H. Kern & Co., S.A., Apartado 1567, Edificio Kern, Av. Ppal. Los Cortijos de Lourdes, Caracas.

ICI

IMPERIAL CHEMICAL INDUSTRIES LIMITED, LONDON, S.W.1., ENGLAND.

for more profitable aerosols specify . . .

AERATED'S NEW TAMPER-PROOF TEAR-N-SCRU COVER*
AND NON-METALLIC, LOW-COST, AERCON TILT VALVE*


Water-tight, tamper-proof. Provides maximum protection, easy to apply.
Easy tear-off tab converts cap to screw cover.
Cap screws snugly back on for safe, tight closure.

At last! Here is a completely tamper-proof, screw-type cover. Combined with Aerated's unique Aercon Tilt Valve,* it's the newest, most desirable unit for food and non-food products. Aerated's valve and cover combination are ideal for all foam and liquid products, regardless of viscosity or density. The low-price, yet high-quality, typical of the complete line of Aerated's valves and processing equipment, make this perfect pair your most profitable to specify and buy. Contact Aerated direct for information on wide range of valve availabilities and processing equipment.

Here's Proof Of Why This New Unit Is Your Best Buy

NEW TEAR-N-SCRU COVERS*

- Unique cover is completely tamper-proof. It has to be torn open.
- One simple step converts cap into easy, tight-sealing screw-on cover.
- Completely waterproof cover is ideal for high-speed, efficient filling operations.
- Covers come in a variety of colors, and are made of inert material that is not affected by temperature.
- Cover eliminates contact between nozzle and cap, assuring a sanitary product.
- Cover upgrades your product and has high consumer merchandising appeal.

PLAIN OR DECORATOR TIP AERCON TILT VALVES*

- Patented spring diaphragm incorporating a limit lock guarantees uniform preloading and quick acting shut-off.
- Specially designed valve seat assures leakproof seal and provides an easily controlled flow for accurate, upsidedown dispensing, directly where required.
- Pressure fills fast and economically with all food and non-food products. Decorator's tip delivers a pattern foam, with maximum over-ride, prevents glossing, and eliminates upsurging.
- Low price and wide range of valve availabilities are the result of carefully controlled research and testing.

*Aerated valves and covers protected by one or more of the following Patents: U.S. Pat. No. 2,612,293, 2,877,936 — BRITISH Pat. 771,141 — CANADIAN Pat. 506,911. Other U.S. and foreign Patents pending.

ingenious aerosol research and manufacturing since 1946

AERATED CONTAINER CORPORATION

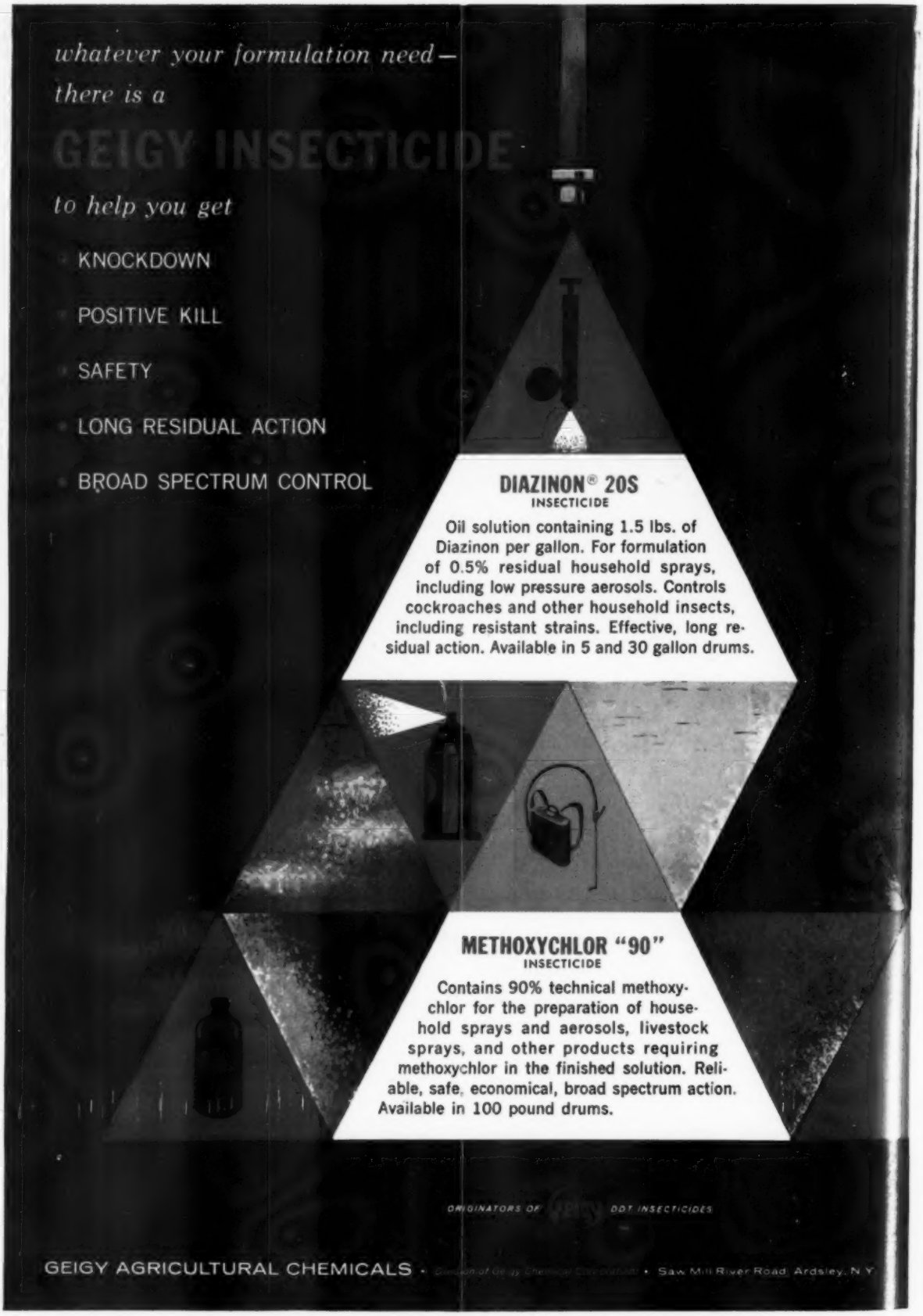
39 South La Salle Street • Chicago 3, Illinois

whatever your formulation need—
there is a

GEIGY INSECTICIDE

to help you get

- KNOCKDOWN
- POSITIVE KILL
- SAFETY
- LONG RESIDUAL ACTION
- BROAD SPECTRUM CONTROL



DIAZINON® 20S
INSECTICIDE

Oil solution containing 1.5 lbs. of Diazinon per gallon. For formulation of 0.5% residual household sprays, including low pressure aerosols. Controls cockroaches and other household insects, including resistant strains. Effective, long residual action. Available in 5 and 30 gallon drums.

METHOXYCHLOR "90"
INSECTICIDE

Contains 90% technical methoxychlor for the preparation of household sprays and aerosols, livestock sprays, and other products requiring methoxychlor in the finished solution. Reliable, safe, economical, broad spectrum action. Available in 100 pound drums.

ORIGINATORS OF DDT INSECTICIDES

GEIGY AGRICULTURAL CHEMICALS • Division of Geigy Chemical Corporation • Saw Mill River Road, Ardsley, N.Y.

For success in creating

Aerosol perfumes and colognes

rely on Givaudan ability

Superior skill, artistry, creative imagination, knowledge of consumer preferences...these are the foundations on which a successful perfume or cologne is built. But...an aerosol fragrance requires even more.

Givaudan offers a complete line of perfume and cologne fragrances which have been specifically prepared to meet the requirements of pressure packaging. Or, we can custom-make a fragrance to meet your specific aerosol needs.

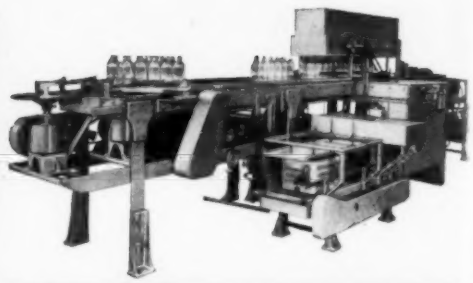
Our staff will welcome the opportunity to discuss your aerosol fragrance requirements.

GIVAUDAN

GIVAUDAN-DELAWANNA, INC.
321 West 44th Street, New York 36, N. Y.

STANDARD-KNAPP CASE UNLOADERS

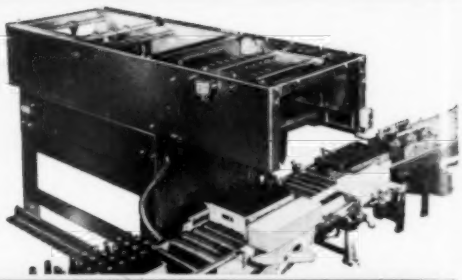
New unit developed to handle glass containers packed and shipped upside down in corrugated cases. Containers are gripped on their bottoms and lifted clear of the case before being inverted to upright position. Carton debris cannot enter.



STANDARD-KNAPP CASE LOADERS

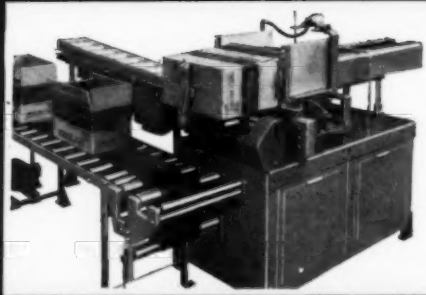
BOTTLE AND CAN

Type 860 Packer takes 27% less space, provides 40% more capacity than previous models. Cycles at speeds up to 30 cases per minute. Rapid change-over. Automatic or semi-automatic case feed.



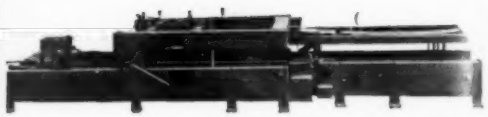
PACKAGE AND BAG

Mechanical and pneumatic types. Handle packages as soft as lb. bags of coffee, as weighty as 10 lbs. of sugar, as bulky as toilet tissue, as firm as detergent cartons, as small as soap.



STANDARD-KNAPP CASE GLUERS and SEALERS

Wide range of models, featuring quick positive adjustment to varying case sizes (some types have automatic adjustment), easily removed glue pots and rollers, accurate control of glue film by calibrated mechanism.



OTHER STANDARD-KNAPP EQUIPMENT

Labelers • Collectors • Boosters • Case Printers
Flap Openers • Unscramblers • Dumpers • Conveyors

EMHART

Emhart Manufacturing Company
Portland, Connecticut
Standard-Knapp Packaging Equipment

SOLUBILITY TESTS
CORROSION CHECKS
Your Perfumed AEROSOL Requires
. . . all this and more before it is ready for market. Shampoos, shave creams, hand lotions, colognes, Xmas snow, insecticides, room sprays, personal deodorants, industrial products . . . whatever the item exhaustive pre-production checks are essential to its long-term success. In the D&O Aerosol Testing Laboratory all of this work is done for the manufacturer readying a new aerosol product for the market. Each test is conducted by an experienced aerosol technician and highly skilled perfumers check odor stability every step of the way. This service is available to you...
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Our 161st Year of Service
PRESSURE FILLING
SHELF-LIFE TESTING IN CORROSION BOX
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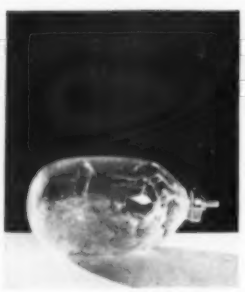
ESSENTIAL OILS • AROMATIC CHEMICALS • PERFUME BASES • FLAVOR BASES • DRY SOLUBLE SEASONINGS

PLASTIC COATED

Wheaton GLASS and COMPRESSED GAS

1

2



3

4

As a propellant, compressed gas is substantially different than the liquefied propellants normally used for aerosol containers. A lower potential energy factor safely permits a gassing pressure of 90 pounds. Your specific problems will be welcomed by our staff of technicians.

Shown left are actual photographs illustrating a typical sequence of breakage. (1) The bottle is dropped, (2) impact causes breakage, (3) the plastic expands and balloons to hold the released pressure, gradually venting the gases, and (4) returning to its original form. Only Wheaton containers will perform in this safe way.

Illustrated here is the break pattern of a bottle subjected to 500 pounds hydrostatic pressure. An adequate margin of safety is provided above the maximum recommended gassing pressure.

Plastic Coating

- **improves pressure retention**
- **prevents weakening scratches**
- **adds resistance to breakage**
- **prevents flying particles on breakage**

WHEATON PLASTICS CO.

MILLVILLE, NEW JERSEY

consumer preference
for Aerosol Packaging
means

NEW, EXTRA PROFITS

on hundreds of products

CHEESE
GLUE • CHOC
IODINE SPRAY • PAIN
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BARBECUE SAUCE • SHOE POLISH • VITAMINS • WAI
CHEESE SPREADS • WALL CLEANER • HAIR CR • LIQ
MOTOR STARTER • CHOCOLATE SYRUP • COFFEE • SH
MEAT TENDERIZER • TOOTHPASTE • SHAMPOO
SALAD DRESSING • PAINTS • GLUE • S
WHIPPED CREAMS • WALL • IOD
HAIR SPRAYS • LIQUID •
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UPHOLST
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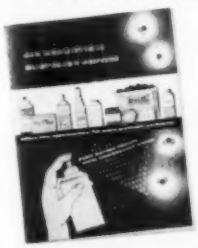
...and Airco Experience
can work for you!

Hundreds of household products—in both the food and non-food fields — have shown exciting sales gains since switching to aerosol packaging.

Air Reduction Company, Inc., a leader in the manufacture of *compressed gases*, has the facilities, manpower and know-how to help you cash in on the tremendous aerosol boom. If you are interested in adding "aerosol profits" to your product line, be sure to contact Air Reduction. Please use the coupon below to request additional information.

Compressed Gases for Packaging: **AIRCO** Nitrogen, Argon and Hydrogen . . . **PURECO** Carbon Dioxide . . . **OHIO** Nitrous Oxide

Send for these informative Airco Brochures . . .



"New Opportunities for More Profitable Packaging" takes the reader on an interesting picture trip through Air Reduction's Customer Service Packaging Laboratory. It also explains how our representatives — both in the field and in the "lab"—will aid you in solving packaging and processing problems involving the use of compressed gases.

"Facts On Gases Used for Food Products" covers many profitable applications of compressed gases in the processing, preserving and packaging of food products...improved appearance and shelf life plus higher consumer acceptance.

AIRCO

AIR REDUCTION COMPANY, INC.

Customer Service Packaging Laboratory
1400 East Washington Avenue • Madison 10, Wisconsin

AIR REDUCTION COMPANY, INCORPORATED
CUSTOMER SERVICE PACKAGING LABORATORY
1400 E. Washington Ave., Madison 10, Wis.

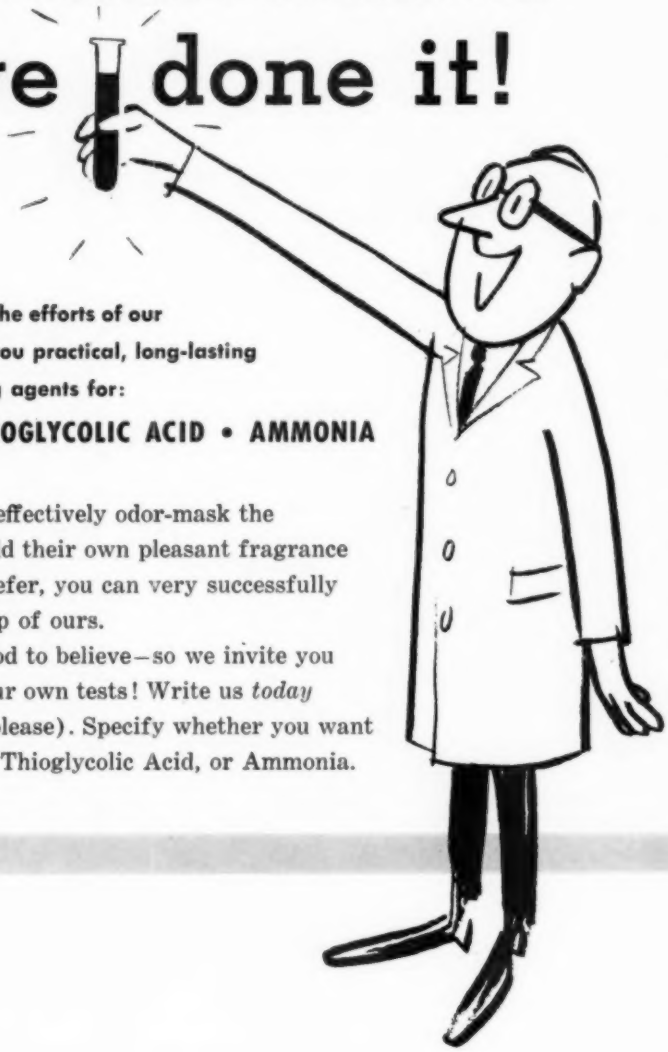
Please send, without obligation, the material requested below:

☐ "NEW OPPORTUNITIES FOR MORE PROFITABLE PACKAGING"
☐ "FACTS ON GASES USED FOR FOOD PRODUCTS"

Name.....
(PLEASE PRINT OR TYPE)
Title.....
Company.....
Address.....
City.....Zone.....State.....

THEY SAID IT COULDN'T BE DONE...but

We've done it!



Now, for the first time, thanks to the efforts of our Research Laboratories, we offer you practical, long-lasting and completely effective masking agents for:

ISOPROPYL ALCOHOL • THIOGLYCOLIC ACID • AMMONIA

Not only do our new products effectively odor-mask the chemical odors but they also add their own pleasant fragrance to your products. Or, if you prefer, you can very successfully use your own fragrances on top of ours.
We admit this is almost too good to believe—so we invite you to send for free samples for your own tests! Write us *today* (on your company letterhead, please). Specify whether you want samples for Isopropyl Alcohol, Thioglycolic Acid, or Ammonia.

ODORS SUPPLIED ALL OVER THE WORLD!

If your company has large scale overseas expansion plans, we can help you with your odor supply problems. During 1958, P. Robertet did business in every country in the world. We manufacture in France, Argentina, Turkey and in Stamford, Connecticut.

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New York Office: P. ROBERTET, Inc. • 221 Fourth Avenue, New York 3

DOW | CHEMICALS

DOW METHYLENE CHLORIDE:

lower ingredient costs—from a dependable source!

As aerosol manufacturers know, methylene chloride provides two outstanding advantages: it reduces ingredient costs by effectively replacing more expensive vapor pressure depressants; and it's an excellent solvent for many aerosol ingredients. Add to these its stability under storage, safety from corrosion of can metals and non-flammability . . . and you have a formulation picture that's product-right and profit-bright.

But it's important, too, to consider the source from which you buy it. These are the reasons why you'll get greater value when you buy methylene chloride from Dow:

- Dow is the world's largest producer of methylene chloride. Extensive production facilities insure that there will always be a supply available.
- Dow's exclusive process means that Dow methylene chloride is the highest quality available . . . and it's consistent, shipment after shipment.
- Delivery is always fast and on schedule! Four strategically located bulk delivery points mean you can get it when you need it.
- Dow's extensive research facilities and accumulated technical data are at your service. We welcome the opportunity to help with your specific technical problems.

Specifying Dow methylene chloride is one sure way of helping to keep ingredient costs down and product dependability up. For more information, contact THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Merchandising Department 708B10.

THE DOW CHEMICAL COMPANY · MIDLAND, MICHIGAN

GILBERT
PLASTICS, INC.

PLASTIC STACK CAPS

...the right cap to fit every aerosol can in every size and valve style.

Gilbert
UNBREAKABLE
Caps cost less!

Write for samples, information and price list today!

GILBERT PLASTICS, INC., BORIGHT AVENUE, KENILWORTH, N. J.

Canadian Distributor: TWINPAK, LTD., 6525 SOMERLED AVE., MONTREAL, QUEBEC

British Affiliate: I-TO-I PLASTICS, BRIDGE CLOSE, ROMFORD, ESSEX, ENGLAND

1959-1960 AEROSOL BUYER'S GUIDE

How to use the Aerosol Buyer's Guide:

Where practicable, all components and services have been listed in alphabetical order, except in the case of various equipment categories, which appear under "Equipment."

The page numbers appearing after the company listings indicate advertisements on other pages of the magazine. In these advertisements the reader will be able to find further information about the product line or service offered by the listed firm.

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Aeroprojects, Inc.
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West Chester, Pa.
OWen 6-4710
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Battelle Memorial Institute
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Columbus, Ohio
(Research)

Bio-Test Laboratories, Inc.
Northbrook, Ill.
(Toxicity, Irritation, and Sensitization Tests)

Crippen Laboratories, Inc.
1500 Guilford Avenue
Baltimore 2, Md.
VErnon 7-6650
(Product Development and Testing)

Evans Research and Development Corp.
250 East 43rd Street
New York 17, N. Y.
MUrray Hill 3-0071
(Product Development and Evaluation)
See Page 136

Florida Chemists & Engineers, Inc.
645 Rugby Avenue
Orlando, Fla.
GArden 5-1595
(Product Development, Line Installation)

Food & Drug Research Laboratories, Inc.
Maurice Avenue at 58th Street
Maspeth 58, N. Y.
TWining 4-0800
(Toxicological and Inhalation Studies)

Robert A. Foresman, Jr., Aerosol Consultant
1690 Margaret Street
Philadelphia 24, Pa.
PIoneer 3-0596
(Development, Formulation, Testing, Plant Layout, Customer Service)

Walter Frank Organization
4100 Warren Avenue
Hillside, Ill.
LInden 4-6600
(Packaging Components)
See Page 115

Al Gaines
5100 Mulford Street
Skokie, Ill.
(Production, plant layout)

Harris Laboratories, Inc.
816 "P" Street
Lincoln 8, Neb.
(Toxicological Studies, Analyses)

Hazleton Laboratories
Falls Church, Va.
(Inhalation Studies, Toxicity Tests, Etc.)

Hill Top Research Institute, Inc.
Miamiville, Ohio
TErrace 1-3114
(Toxicity, Irritation, and Sensitization Tests)

Hudson Laboratories, Inc.
117 W. 13th Street
New York 11, N. Y.
ALgonquin 5-6290
(Toxicology, Dermatology, Etc.)

W. Alec Jordan Associates
290 Park Avenue
New York 17, N. Y.
(Product Market Studies)

Kurek Engineering
5201-B University Avenue
Madison 5, Wis.
CEdar 3-3771
(Selection and Modification of Production Equipment)

Leberco Laboratories
123 Hawthorne Street
Roselle Park, N. J.
CHestnut 5-1933
(Product Toxicity and Irritation Studies)

Arthur D. Little, Inc.
30 Memorial Drive
Cambridge 42, Mass.
(Research)

Lodes Aerosol Consultants
730 Fifth Avenue
New York 19, N. Y.
CIrcle 7-3170
(Product Development, Research, Plant Layout)

Metico, Inc.
347 Fifth Avenue
New York 16, N. Y.
MUrray Hill 3-2850
(Plant Layout and Equipment)

Pegasus International Corp.
1 East 53rd Street
New York 22, N. Y.
PLaza 8-2790
(Overseas Representation)

Products Development Associates
111-11 Lefferts Boulevard
S. Ozone Park 20, N. Y.
VIrginia 8-2673
(Valve and Aerosol Dispenser Design)

Reed Research Corp
Mill Street
Shelton, Conn.
REgent 5-4858
(Research, Testing, Product Development)

Rosner-Hixson Laboratories
7737 South Chicago Avenue
Chicago 19, Ill.
REgent 4-0142
(Toxicity Testing, Irritation Studies)

Foster D. Snell, Inc.
29 West 15th Street
New York 11, N. Y.
WAtkins 4-8800
(Research, Testing, Formulation)

United States Testing Co.
1415 Park Avenue
Hoboken, N. J.
SWarthmore 2-2400
(Research, Testing, Toxicology)

Wisconsin Alumni Research Foundation
P. O. Box 2217-DD
Madison 1, Wisconsin
(Formulation, Labeling, Toxicity Testing)
See Page 136

CONTAINERS
(Aluminum)

Aluminum International Inc.
1855 Blake Street
Denver 15, Colo.
(Agents for Bombrini-Parodi Delfino)
See Page 101

Aluminum Co. of America
Alcoa Building
Pittsburgh 19, Pa.

Bradley-Sun Division
American Can Co.
Thompson Street
Maynard, Mass.

Continental Can Co.
100 E. 42nd Street
New York 14, N. Y.
OXford 7-1200

See Page 59

Emson Research, Inc.
118 Burr Court
Bridgeport 5, Conn.
EDison 6-2553

See Page 23

Hampton Products Co.
Hester Street
Portland, Pa.
TWin Oaks 7-6103

Metal Fabrications, Inc.
203 Cherry Street
Waterbury 20, Conn.

See Page 4

Modern Containers, Ltd.
1190 Birchmont Road
Scarboro, Ont., Canada
PL 5-5236

Peerless Tube Corp.
58 Locust Avenue
Bloomfield, N. J.
PIlgrim 3-5100

See Page 95

Pegasus International Corp.
1 East 53rd Street
New York 22, N. Y.
PLaza 8-2790
(Agents for Pautry Aluminum, Bellegarde (Ain) France)

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231

See Page 107

United States Can Co.
Subsidiary, Victor Metal Products Co.
Newport, Ark.

White Metal Mfg. Co.
1012 Grand Street
Hoboken, N. J.
OLdfield 9-2043

A. H. Wirz, Inc.
2292 W. Townsend Street
Chester, Pa.

CONTAINERS
(Glass)

Brockway Glass Co., Inc.
Brockway, Pa.
BRockway 3015

Foster-Forbes Glass Co.
E. Charles Street
Marion, Ind.

Hazel Atlas Glass
Div. of Continental Can Co.
Wheeling, W. Va.

Maryland Glass Co.
2147-53 Wicomico Street
Baltimore 20, Md.

Narva Products Corp.
201 Verona Avenue
Newark, N. J.

Owens-Illinois Glass Co.
P. O. Box 1035
Toledo, Ohio
CHerry 2-6543

See Page 87

Richford Corporation
3618 Oceanside Road
Oceanside, N. Y.
ROckville Centre 6-2366

See Page 121

Wheaton Glass Co.
Millville, N. J.
TAylor 5-1400

See Page 30

CONTAINERS
(Jumbo-Size Metal)

Tube Manifold Corp.
419 Bryant Street
North Tonawanda, N. Y.
LUdlow 7900

See Page 108

CONTAINERS
(Pharmaceutical Respirators)

Thomas J. Mahon, Inc.
75 Brayton Street
Englewood, N. J.
LOwell 7-3900

CONTAINERS
(Plastic)

Apcon Co.
25th and King's Highway
Independence, Mo.
CLifton 4-6000

See Page 92

Bernardin Bottle Cap Co.
2201 W. Maryland Street
Evansville, Ind.

Colt's Plastic Co.
Putnam, Conn.
WAlnut 3-9514

Imco Container Corp
75th & Cleveland Streets
Kansas City, Mo.

National Plastic Products Co.
Odenton, Md.
SOuthfield 6-1000

Owens-Illinois Glass Co.
P. O. Box 1035
Toledo, O.
CHerry 2-6543

See Page 87

Precision Molding Inc.
41 Holly Place
Stamford, Conn.

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

See Page 10

Pyro Plastics Corp.
690 Chestnut Street
Union, N. J.

Richford Corp.
5618 Oceanside Road
Oceanside, N. Y.
ROckville Centre 6-2366

See Page 121

Richmond Plastics Ltd.
Richmond, Que., Canada

Union Carbide Plastics Co. Division
Union Carbide Corp.
30 E. 42nd Street
New York 17, N. Y.

United Plastic Industries
1300 Water Street
Vassar, Mich.
VAssar 2431

Wilmington Plastics Co.
810 S. Heald Street
Wilmington, Del.
OLympic 8-6401

A. H. Wirz Co. Inc.
Fourth and Townsend Streets
Chester, Pa.
CHester 3-6281

CONTAINERS
(Plastic-Coated Glass)

Owens-Illinois Glass Co.
P. O. Box 1035
Toledo, O.
CHerry 2-6543

See Page 87

Wheaton Plastics Co.
Millville, N. J.
TAylor 5-1400

See Page 30

CONTAINERS
(Screw-on Top)

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

See Pages 126, 127

CONTAINERS
(Stainless Steel)

Emson Research, Inc.
118 Burr Court
Bridgeport 5, Conn.
EDison 6-2553

See Page 23

Metal Fabrications, Inc.
203 Cherry Street
Waterbury 20, Conn.

See Page 4

Risdon Manufacturing Co.
Naugatuck, Conn.
PArk 9-8231

See Page 107

Tubing Seal Cap, Inc.
San Gabriel, Calif.

CONTAINERS
(Tin and Black Plate)

American Can Co.
100 Park Avenue
New York, N. Y.
MUrray Hill 6-4900

See Page 83

Continental Can Co.
100 East 42nd Street
New York 14, N. Y.
OXford 7-1200

See Page 59

Crown Cork & Seal Co., Inc.
Can Division
9300 Ashton Road
Philadelphia 36, Pa.
ORchard 3-5100

See Page 11

CONTAINER FINISHING AND DECORATING

Britel Products, Inc.
102 Straight Street
Paterson, N. J.
ARmory 4-5767

Eyelet Specialty Division
International Silver Co.
P.O. Box 179
Wallingford, Conn.
COlony 9-1407

Metal Fabrications, Inc.
203 Cherry Street
Waterbury 20, Conn.

See Page 4

Monroe-Danford & Co.
50 48th Street
Weehawken, N. J.
UNion 6-1277

CONTAINER RAW MATERIALS
(See "Nylon and Other Resins")

COVER CAPS AND CLOSURES

Armstrong Cork Co.
5403 Cornell Avenue
Lancaster, Pa.

Bristol Flowed Gasket Co.
P. O. Box 382
Southington, Conn.

Britel Products, Inc.
102 Straight Street
Paterson, N. J.
Armory 4-5767

J. L. Clark Manufacturing Co.
2300 Sixth Street
Rockford, Ill.

Clayton Corp.
4205 Forest Park Boulevard
St. Louis 8, Mo.
JEfferson 5-6226

See Page 15

Clinton Valves, Inc.
35135 Groesbeck Highway
Mt. Clemens, Mich.

See Page 93

Colt's Plastic Co.
Putnam, Conn.
WAlnut 3-9514

Eastern Cap & Closure Co.
725 N. Haven Street
Baltimore 5, Md.
EAstern 7-5640

See Page 122

Eyelet Specialty Division
International Silver Co.
P.O. Box 179
Wallingford, Conn.
COlony 9-1407

Gilbert Plastics, Inc.
Boright Avenue
Kenilworth, N. J.

See Page 34

Line Novelty Manufacturing Co.
P.O. Box 1386
Waterbury 20, Conn.

Ludwig Closures
185 Oakland Street
Brooklyn 22, N. Y.
EVergreen 3-2197

See Page 113

Mack Molding Co.
Wayne, N. J.
MOuntain View 8-0800

Metal Fabrications, Inc.
203 Cherry Street
Waterbury 20, Conn.

Monroe-Danford & Co.
50 48th Street
Weehawken, N. J.
UNion 6-1277

Owens-Illinois Glass Co.
P. O. Box 1035
Toledo, O.
CHerry 2-6543

See Page 87

Penn Cork & Closures, Inc.
115 Manhattan Avenue
Brooklyn 22, N. Y.
EVergreen 9-4416

See Page 118

Pharma Plastics Inc.
205 S. Smallwood Street
Baltimore 23, Md.
Baltimore 23, Md.
GIlmore 5-7311

Pinpak, Inc.
High Street,
Attica, N. Y.
ATtica 898

Precision Molding Inc.
41 Holly Place
Stamford, Conn.

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

See Page 10

Pres-Pak Valve Corp.
2060 Happy Lane
St. Louis 25, Mo.
TWinbrook 2-1135

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231

See Page 107

Scott Plastics
410 Windsor Street
Hartford 5, Conn.

Scovill Manufacturing Co.
99 Mill Street
Waterbury 20, Conn.

Sterling Seal Co.
316 West 16th Street
Erie, Pa.
ERie 4-1568

Super Whip Valve Co.
4101 N. Rockwell
Chicago 18, Ill.

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

See Back Cover

Walter Frank Organization
4100 Warren Avenue
Hillside, Ill.
LInden 4-6600

See Page 115

West Penn Mfg. & Supply Corp.
809 Second Avenue
Brackenridge, Pa.
ACademy 4-5252

See Page 100

Wheeling Stamping Co.
2116 Water Street
Wheeling, W. Va.
CEdar 3-4770

Wilmington Plastics Co.
810 S. Heald Street
Wilmington, Del.
OLympic 8-6401

A. H. Wirz, Inc.
Fourth & Townsend Streets
Chester, Pa.
CHester 3-6281

CUSTOM FILLERS

(These companies fill for the trade — many supply filled aerosol products for private labels)

Acrolite Products, Inc.
810 Martin Street
Rahway, N. J.
FUlton 1-4600

AeriForm Products Co.
23400 Park Street
Dearborn, Mich.
LOgan 3-2102

Aero-Chem Fillers, Inc.
1983 State Street Extension
Bridgeport 5, Conn.
EDison 3-4181

See Pages 84, 129

Aerocide Dispensers Ltd.
P. O. Box 9—Weston
Toronto 15, Ont., Canada
CHerry 4-1101

Aero-Fill Co.
Third Avenue
Ranson, West Va.
Charles Town 988

Aeropak, Inc.
5000 W. 41st Street
Chicago 50, Ill.
LAfayette 3-5600

Aeropak of New Jersey, Inc.
548 Belleville Turnpike
Kearney, N. J.

Aerosol Bug Blitzer Co.
10 Dell Park Avenue
Toronto, Ont., Canada

Aerosol Corp. of the South
P. O. Box 148
Arlington, Tenn.
UNiversity 7-2254

Aerosol Custom Pharmaceuticals, Ltd.
42 Milford Avenue
Toronto 15, Canada
CH 4-1947

See Page 130

Aerosol Fylling A/S
87 Maridalsveien
Oslo, Norway

Aerosol Methods
Ridge Road
Tylersport, Pa.
ALpine 7-6032

Aerosol of Georgia, Inc.
4113 Peachtree Road NE
Atlanta 19, Ga.
CEdar 7-0077

Aerosol Service AG
Rhienen-Bassel, Switzerland

Aerosol Techniques, Inc.
1730 State Street
Bridgeport, Conn.
EDison 6-0176

See Pages 116, 130

Airosol Co., Inc.
525 N. 11th Street
Neodesha, Kans.
Neodesha 149

American Aerosol Corp.
889 Gordon Street
Holland, Mich.
EXport 2-3025

AMR Chemicals Co., Inc.
985 East 35th Street
Brooklyn, N. Y.
CLoverdale 3-8300

Arlenge Laboratories
34 Hubert Street
New York 13, N. Y.
BEekman 3-6818

Armstrong Laboratories
421 LaGrange Street
W. Roxbury, Mass.
FAirview 3-7404

See Page 129

Associated Brands, Inc.
50 Wallabout Street
Brooklyn, N. Y.
ULster 5-2900

See Page 129

Astoria Manufacturing Co.
42-02 Vernon Boulevard
Long Island City, N. Y.

Atlantic Laboratories of Delaware
P. O. Box 1644
Wilmington 99, Del.
SYcamore 8-8749

Automatic Filling Corp.
1213 No. Highland Avenue
Los Angeles 38, Calif.
HOllywood 9-7284

G. Barr & Co.
3601 S. Racine Avenue
Chicago, Ill.
YArds 7-1700

See Page 96

G. Barr & Co.
4747 Bronx Boulevard
Bronx, N. Y.

See Page 96

Berkshire Aerosol Co.
394 Linde Street
Bridgeport, Conn.

Capital Packaging
1441 S. Circle Avenue
Forest Park, Ill.
COlumbus 1-6295

Cardel Enterprises
Bethridge Rd. Rexdale
Toronto, Canada
CHerry 4-1123

Chase Products Co.
Gardener Road
Broadview, Ill.
FIllmore 5-1222

See Pages 119, 131

Chemical Specialties Corp.
1007 West Maryland
Evansville 10, Ind.
HArrison 5-1101
(high-pressure only)

Claire Manufacturing Co.
7642 Vincennes Avenue
Chicago 20, Ill.
ABerdeen 4-6400

Claire Manufacturing Co.
1200 N.W. 23rd Avenue
Ft. Lauderdale, Fla.
LUdlow 3-7440

Cleveland Aerosol Packaging
9801 Harvard Avenue
Cleveland, O.
VUlcan 3-4800

See Page 132

Connecticut Chemicals (Canada) Ltd.
Curity Avenue & Hellinger Road
Toronto, Ont., Canada
PLymouth 5-5249

Consolidated Aerosols Corp.
1325 Second Avenue
New Hyde Park, L. I., N. Y.
HUnter 8-2330

See Page 137

Continental Filling Corp.
123 Hazel Street
Danville, Ill.
Danville 742

See Pages 111, 131

Continental Filling Corp.
Hobart, Ind.

See Pages 111, 131

Cunningham Distributors
122 Cuthbert Street
Philadelphia, Pa.

Dettlebach Chemical Corp.
Peachtree Road
Atlanta, Ga.

Diamond Chemical Co.
Glen Gardiner, N. J.
CAlifon 138J

Diamond Chemical Co.
630 Dorchester Street West
Montreal, Quebec, Canada
UNiversity 6-2104

T. J. Dunham Paint Co.
115 Woodward Avenue
Yonkers, N. Y.
YOnkers 8-2828

Empress Cosmetic Co.
Bethpage, L. I.

Embassy Laboratories
2896-98 Fulton Street
Brooklyn, N. Y.

Eska Chemical Corp.
352 Livonia Avenue
Brooklyn, N. Y.
DIckens 2-5205

See Page 129

Eveready Pressurized Prod., Inc.
1022 Belt Line Avenue
Cleveland, O.
SHadyside 1-1388

See Page 132

Fluid Chemical Co. Inc.
878 Mt. Prospect Avenue
Newark, N. J.
HUmboldt 4-1000

Fuld Bros., Inc.
702 South Wolfe Street
Baltimore 31, Md.
BRoadway 6-7400

Gabriel Manufacturing Co.
Maple Avenue
Haverstraw, N. Y.
HAverstraw 9-3236

Gard Industries, Inc.
1739 Harding Road
Northfield, Ill.
Wilmette 7007

See Pages 120, 132

Gebauer Chemical Co.
9408-10 St. Catherine Avenue
Cleveland, O.
BRoadway 1-5252

Haas Chemical Corp.
Aerosol Packaging Division
W. Linden and N. 8th Avenue
Scranton 3, Pa.
DIamond 4-2064

Hampton Products
Hester Street
Portland, Pa.
TWin Oaks 7-6103

Dr. E. Huber & Co.
Zumikon, Switzerland

Hysan Products Co.
932 West 38th Street
Chicago, Ill.
VIrginia 7-1168

See Page 128

IKI Manufacturing Co.
107 Maple Court
Edgerton, Wisc.
Edgerton 144

See Page 132

Illinois Bronze Co.
2023 S. Clark Street
Chicago, Ill.

Inland Paint & Chem. Co.
2144 West 49th Street
Chicago, Ill.
VIrginia 7-7511

Jet-Air Inc.
12 18th Avenue
Paterson, N. J.

Kan-Jax Chem. Co.
2500 Summit Avenue
Kansas City, Mo.

Kaysing Korp.
8005 Alabama
St. Louis 11, Mo.

See Page 132

Kent Industries
2641 Joy Road
Detroit 6, Mich.

Kerr Chemicals, Inc.
P. O. Box 189
Des Plaines, Ill.
VAnderbilt 7-4477

Kolmar Laboratories
Port Jervis, N. Y.
POrt Jervis 3-2265

LaMaur, Inc.
110 N. Fifth Street
Minneapolis, Minn.
FEderal 8-4771

Larson Laboratories
1320 Irwin Avenue
Erie, Pa.

Lawson Chemical Products Co.
1700 South Broadway
Gardena, Calif.
FAculty 1-4220

Lenk Manufacturing Co.
Franklin, Ky.

Marcy Laboratories, Inc.
2161 N. California Avenue
Chicago 47, Ill.
SPaulding 2-3900

See Page 132

McGuire & Co.
833 47th Avenue
Oakland, Calif.

Midwest Aerosols
7644 S. Vincennes Avenue
Chicago 20, Ill.
ABerdeen 4-6400

Midwest Consultants, Inc.
3500 DeKalb Street
St. Louis 18, Mo.
PRospect 1-5750

Mohawk Brush Co.
Aerosol Filling Division
Fuller Road
Albany, N. Y.

Mohawk Furniture Finishing Products Inc.
175 West Main Street
Amsterdam, N. Y.
VIctor 3-1380

Morton Co.
1625 N. Highland
Memphis 8, Tenn.

National Chemical Laboratories, Inc.
420 Monceaux Road
West Palm Beach, Fla.

National Spray Can Filling Corp.
6202 Avenue U
Brooklyn, N. Y.
CLoverdale 1-3350

See Page 129

New England Pharmaceutical
2013 Outer Drive
Dearborn, Mich.

Old Empire, Inc.
Mt. Prospect & Verona Ave.
Newark, N. J.
HUmboldt 4-2121

See Pages 125, 129

Pace, Inc.
P. O. Box 206
Wilmington 99, Del.
EAst 8-4151

See Page 130

Par Industries, Inc.
2193 East 14th Street
Los Angeles 21, Calif.
TRinity 2668

See Pages 123, 130

Pennsylvania Engineering Co.
1107-21 N. Howard Street
Philadelphia 23, Pa.
MArket 7-3635

Peterson Filling & Packaging Co.
Hegeler Lane
Danville, Ill.
DAnville 1400

See 3rd Cover, 132

Pinpak, Inc.
High Street
Attica, N. Y.
ATtica 898

Plaze, Inc.
9401 Watson Industrial Park
St. Louis, Mo.
WOodland 1-3564

PowrPak-ConnChem Inc.
145 Howard Aveune
Bridgeport, Conn.
FOrest 7-6495

See Page 130

Press 'N Serve Foods, Inc.
3814 Nebraska Street
St. Louis 18, Mo.
(Foods Only)

See Page 131

Pressure Products Co.
Box 342
West Chester, Pa.
OWen 6-3363

Products Packaging Inc.
Box 1076, Station A
Cleveland 2, O.
WOodbine 1-8800

Professional Products Laboratories
1138 East North Avenue
Baltimore 2, Md.

Protection Chemical Products Co.
5747 Souligny Street
Montreal 5, Canada

Puritan Distributing Co.
Aerosol Filling Division
160 Washington Street N.
Boston, Mass.
RIchmond 2-3318

See Page 129

Rand Chemical Products Co.
2626 S. Dearborn Street
Chicago, Ill.
CAlumet 5-2866

W. T. Rawleigh Co.
101 S. Liberty Avenue
Freeport, Ill.

See Page 132

Red Devil Chemicals Inc.
30 North West Street
Mount Vernon, N. Y.
MOunt Vernon 4-9880
(Paints and related products)

Red Lion Chemical Co.
146 N. Charles St.
Red Lion, Pa.
(Paint Only)

Red Ram Chemical Co.
755 Utica Avenue
Brooklyn 3, N. Y.
PResident 1-8300

Reed Research Co.
Aerosol Filling Division
Mill Street
Shelton, Conn.
REgent 5-4858

Regal Chemical Corp.
115 Dobbin Street
Brooklyn 22, N. Y.
EVergreen 9-8727

Rex Research Corp.
600 Montrose Avenue
Toledo 7, O.
JEfferson 6-4633

Rocket Chemical Co.
4672 Alvarado Canyon Road
San Diego, Calif.

Ronor Corp.
Div. of Engine Parts Mfg. Co.
1360 West 9th Street
Cleveland, O.
MAin 1-5294

Rose Manufacturing Co.
200 Water Street
Poughkeepsie, N. Y.

Gene Rose Co., Inc.
1637 S. Kilbourn Avenue
Chicago, Ill.
LAwndale 1-7000

See Page 133

Schaefer Paint Co.
334 Marion Street
Lancaster, Pa.

707 Co.
1530 Stillwell Avenue
New York 61, N. Y.

Shield Chemical Co.
50 Brook Road
Needham Heights, Mass.
HIllcrest 4-6120

Southeastern Packaging Co.
P. O. Box 8057
Madiera Beach
St. Petersburg, Fla.

Spray Mist Inc.
952 Utica Avenue
Brooklyn 3, N. Y.

Sprayon Products Co.
2075 East 65th Street
Cleveland, O.
HEnderson 2-2900

See Page 102

Sprayway, Inc.
1200 N.W. 23rd Avenue
Fort Lauderdale, Fla.
JAckson 4-2545

Spruhtechnik Gmbh.
Rheinfelden/Baden 75, Germany

Stalfort Pressure-Pak Corp.
321 W. Pratt St.
Baltimore 1, Md.
SAratoga 7-4760

See 2nd Cover, 129

Stanley Home Products Co.
National Contracts Division
116 Pleasant Street
Easthampton, Mass.
EAsthampton 1000

Stewart-Hall Chemical Co.
17 Northwest Street
Mount Vernon, N. Y.

Strobel Products, Inc.
2609 Congress St.
Louisville, Ky.
SPring 2-2705

See Page 132

Strouse, Inc.
Main & Astor Streets
Norristown, Pa.
BRoadway 2-2211

John Struthers & Co. Ltd.
5581 Pare Street
Montreal, Canada
RIverside 8-7623

See Page 132

Sun Lac Inc.
274 Lafayette Street
Newark 5, N. J.
MArket 3-7727

See Page 130

S & W Manufacturing Chemists
P. O. Box 274
Gainesville, Fla.
FRanklin 2-2138

Tasti Cup Coffee Corp.
30 Main Street
Brooklyn 1, N. Y.
(foods only)

Texas Aerosols, Inc.
201 Velasco Street
Houston 3, Tex.
CA 2-0338

Texas Rice Oils Corp.
5245 Ashbrook Street
Houston, Tex.

Thomasson of Pa., Inc.
Washington & Ford Streets
Norristown, Pa.

See Page 129

Titan Chemical Industries Inc.
3005 Huron Street
Denver, Colo.

Tops Products Co.
203 E. 12th Street
New York 3, N. Y.

United States Aerosol Specialties Corp.
300 Decatur Street
New Orleans 12, La.
EXpress 4004

Van Pell Chemical & Supply Corp.
48 East First Street
New York 3, N. Y.

Virginia Smelting Co.
West Norfolk, Va.

Vixen Chemical Corp
201 Verona Avenue
Newark 4, N. J.

West Coast Aerosol Products Inc.
208-02 48th Avenue
Bayside, L. I., N. Y.
BAyside 5-1681

Western Filling Corp.
4151 Bandini Boulevard
Los Angeles 23, Calif.
ANgelus 2-4168

See Page 130

Whitmire Research Labs., Inc.
339 S. Vanderventer Street
St. Louis 10, Mo.

Zenith Chemical Corp.
175 Mt. Pleasant Avenue
Newark, N. J.
HUmboldt 2-1800

DIP TUBING

Action Plastics Inc.
Affiliate of Colorite Plastics of N. J.
50 California Avenue
Paterson, N. J.

See Page 91

Anesite Co.
3575 Touhy Avenue
Skokie, Ill.

Anchor Plastics
36-36 36th Street
Long Island City, N. Y.
RAvenswood 9-1494

See Page 105

Walter Frank Organization
4100 Warren Avenue
Hillside, Ill.
LInden 4-6600

See Page 115

Hydrawlik Co.
131 East First Avenue
Roselle, N. J.
CHestnut 5-0368

Jordan Manufacturing Co.
Des Plaines, Ill.
VAnderbilt 4-4121

Plastic Extruded Products Co.
308 Port Avenue
Elizabeth 1, N. J.
ELizabeth 4-2300

United States Gasket Co. Division
The Garlock Packing Co.
Camden 1, N. J.

EMULSIFIERS

American Cholesterol Products Inc.
Amerchol Park
Edison, N. J.
LIberty 8-6600

See Page 21

Antara Chemicals Division
General Aniline & Film Corp.
435 Hudson Street
New York 14, N. Y.
WAtkins 0600

Atlas Powder Co.
Chemicals Division
Wilmington 99, Del.
OLympia 8-6511

Knapp Products, Inc.
178 Hamilton Avenue
Lodi, N. J.
PRescott 9-6945

Nopco Chemical Co.
60 Park Pl.
Newark, N. J.

Rohm & Haas Co.
Agricultural Chemicals Dept.
Washington Square
Philadelphia 5, Pa.

See Page 85

Sole Chemical Corp.
27 E. Monroe Street
Chicago 3, Ill.
STate 2-9430

Stepan Chemical Co.
427 W. Randolph Street
Chicago 6, Ill.

Witco Chemical Co.
122 E. 42nd Street
New York 17, N. Y.
MUrray Hill 7-7979

EQUIPMENT

Can Unscramblers

Chisholm-Ryder Co. of Pennsylvania
Blettner Avenue
Hanover, Pa.
MElrose 7-2123

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Dudley Machinery Corp.
P. O. Box 143
Santa Clara, Calif.

Food Machinery & Chemical Corp.
342 W. Julian Street
San Jose 6, Calif.
CYpress 4-8124

Horix Manufacturing Co.
2601 Chartiers Avenue
Pittsburgh 4, Pa.
FEderal 1-0622

Island Equipment Corp.
P. O. Box 380276
Miami 38, Fla.

J. G. Machine Works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373

See Page 112

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

U. S. Bottlers Machinery Co.
4015 North Rockwell Street
Chicago 18, Ill.
IRving 8-0263

See Page 138

Capping Equipment

Arenco Machine Co.
25 West 43rd Street
New York 36, N. Y.
BRyant 9-9250

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

See Pages 127, 128

Burt Machine Co.
401 E. Oliver Street
Baltimore 2, Md.
SAratoga 7-2120

Consolidated Packaging Machinery Corp.
1400 West Avenue
Buffalo 13, N. Y.

Index Industrial Corp.
150 Broadway
New York 38, N. Y.
BEekman 3-4180

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

Resina Automatic Machinery Co.
572 Smith Street
Brooklyn 31, N. Y.
TRiangle 5-5496

Scientific Filter Co.
57 Rose Street
New York 38, N. Y.
BEekman 3-1210

Cartoners and Carton Packers

Bivans Corp .
2431 Dallas Street
Los Angeles 31, Calif.

Burt Machine Co.
401 E. Oliver Street
Baltimore 2, Md.
SAratoga 7-2120

Chisholm-Ryder Co. of Pennsylvania
Blettner Avenue
Hanover, Pa.
MElrose 7-2133

Clybourn Machine Corp.
6479 N. Avondale
Chicago 31, Ill.
NEwcastle 1-8000

J. L. Ferguson Co.
Route 52
Joliet 3, Ill.

R. A. Jones & Co.
P. O. Box 485
Cincinnati, O.

National Equipment Corp.
153-7 Crosby Street
New York, N. Y.
CAnal 6-5333

Pneumatic Scale Corp.
65 Newport Avenue
North Quincy 71, Mass.

Standard-Knapp Division
Emhart Mfg. Co.
Portland, Conn.

See Page 28

Stokes & Smith Co.
4915 Summerdale Avenue
Philadelphia, Pa.

Triangle Package Machinery Co.
6633 West Diversey Boulevard
Chicago, Ill.
TUxedo 9-0200

Carton Uncaser

Radio Corp. of America, Inc.
Industrial Electronic Products
Bldg. 15-1
Camden, N. J.

Container Cleaning and Purging Equipment

Chisholm-Ryder Co. of Pennsylvania
Blettner Avenue
Hanover, Pa.
MElrose 7-2123

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Continental Can Co.
100 East 42nd Street
New York 17, N. Y.
OXford 7-1200

See Page 59

Crown Cork & Seal Co., Inc.
9300 Ashton Road
Philadelphia 36, Pa.
ORchard 3-5100

See Page 11

Food Machinery & Chemical Corp.
342 W. Julian Street
San Jose 6, Calif.
CYpress 4-8124

Island Equipment Corp.
P. O. Box 380276
Miami 38, Fla.

J. G. Machine Works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373

See Page 112

Karl Kiefer Machine Co.
919 Martin Street
Cincinnati 2, O.

See Page 104

Kartridg-Pak Machine Co.
9151 Fullerton Ave.
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

Standard-Knapp Division
Emhart Manufacturing Co.
Portland, Conn.

See Page 28

U. S. Bottlers Machinery Co.
4015 North Rockwell Street
Chicago 18, Ill.
IRving 8-0263

See Page 138

Coding Devices

American Marking Corp.
71 Lock Street
Newark 1, N. J.

Bivans Corp.
2431 Dallas Street
Los Angeles 31, Calif.

Arthur Colton Co. Division
Snyder Tool Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Adolph Gottscho Inc.
6 Evans Terminal
Hillside, N. J.
FLanders 1-1500

See Page 122

Industrial Marking Equipment Co.
655 Berriman Street
Brooklyn 8, N. Y.
NI 9-3305

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

Kiwi Coders Corp.
4027 North Kedzie Avenue
Chicago 18, Ill.

See Page 124

John R. Nalbach Eng. Co.
6139 Ogden Avenue
Chicago 50, Ill.
OLympic 2-0833

See Page 98

Compressors

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Chicago Pneumatic Tool Co.
8 East 44th Street
New York 17, N. Y.
MUrray Hill 7-1700

Gardner-Denver Co.
Quincy, Ill.

Ingersoll-Rand
11 Broadway
New York 4, N. Y.
DIgby 4-6070

Norwalk Co., Inc.
South Norwalk, Conn.

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

Conveyors

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Eriez Manufacturing Co.
276 Magnet Drive
Erie, Pa.

Island Equipment Corp.
P. O. Box 380276
Miami 38, Fla.

Jeffrey Manufacturing Co.
828 N. Fourth Street
Columbus 16, O.

J. G. Machine Works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373

See Page 112

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

Link Belt Co.
301 West Pershing Road
Chicago 9, Ill.

Gas Chromatograph

Beckman Instruments Inc.
2500 Fullerton Road
Fullerton, Calif.
LAmbert 5-8241

Chicago Apparatus Co.
1735 North Ashland Avenue
Chicago 22, Ill.
BRunswick 8-4630

Greenbrier Instruments Inc.
Ronceverte, West Va.

The Perkin-Elmer Corp.
780 Main Avenue
Norwalk, Conn.

Wilkens Instrument & Research Inc.
P. O. Box 313
Walnut Creek, Calif.
YEllowstone 5-1459

Gasser-Shaker

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

LeMay Machine Co.
276 LeMay Ferry Road
St. Louis 23, Mo.
HUdson 1-3050

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

John R. Nalbach Engineering Co.
6139 Ogden Avenue
Chicago 50, Ill.
OLympic 2-0833

See Page 98

Heat Exchanger (for cold filling)

Chemetron Corp.
Girdler Process Equipment Division
334 E. Broadway
Louisville 2, Ky.
JU 7-7553

Ingredient Fillers

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Elgin Manufacturing Co.
200 Brook Street
Elgin, Ill.

Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

See Page 137

Filpaco Industries
2426 South Michigan
Chicago 16, Mich.
CAlumet 5-8900

Food Machinery & Chemical Corp.
342 W. Julian Street
San Jose 6, Calif.
CYpress 4-8124

Rudolf W. Fritsch
Richard Wagner Strasse 42
Bayreuth, Germany

Horix Manufacturing Co.
2601 Chartiers Avenue
Pittsburgh 4, Pa.
FEderal 1-0622

J. G. Machine Works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373

See Page 112

Karl Kiefer Machine Co.
919 Martin Street
Cincinnati 2, O.

See Page 104

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

MRM Co., Inc.
191 Berry Street
Brooklyn 11, N. Y.
EVergreen 7-3936

Multi-Fill Machine Co.
340 North Westwood Avenue
Toledo, O.

National Instrument Co.
2701 Rockwood Avenue
Baltimore 15, Md.
FOrest 7-9124

Packer Machinery Co.
109 14th Street
Brooklyn 15, N. Y.
HU 9-8850

Perry Industries, Inc.
6401 Third Avenue
Brooklyn 20, N. Y.

The Pfaudler Co. Division
Pfaudler Permutit Inc.
Clark Street
Rochester 3, N. Y.

Popper & Sons, Inc.
300 Fourth Avenue
New York 10, N. Y.
ORegon 4-5500

Filters

Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

See Page 137

Filpaco Industries, Inc.
2426 South Michigan Avenue
Chicago 16, Ill.
CAlumet 5-8900

Karl Kiefer Machine Co.
919 Martin Street
Cincinnati 2, O.

See Page 104

Scientific Filter Co.
57 Rose Street
New York, N. Y.
BEekman 3-1210

Filter Sheets

Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

See Page 137

Filpaco Industries, Inc.
2426 South Michigan Avenue
Chicago 16, Ill.
CAlumet 5-8900

Mixing Equipment

Abbe Engineering Co.
420 Lexington Avenue
New York 17, N. Y.
COrtland 7-1115

Allsop Engineering Corp.
100 Center Street
Milldale, Conn.

Eastern Industries Inc.
Hamden 14, Conn.

Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

See Page 137

Falcon Manufacturing Division
First Machinery Corp.
211 Tenth Street
Brooklyn 15, N. Y.

Filpaco Industries, Inc.
2426 South Michigan Avenue
Chicago 16, Ill.
CAlumet 5-8900

Mixing Equipment Co.
185-N Mt. Read Boulevard
Rochester, N. Y.

Labelers

Burt Machine Co.
401 E. Oliver Street
Baltimore 2, Md.
SAratoga 7-2120

Chisholm-Ryder Co. of Pennsylvania
Blettner Avenue
Hanover, Pa.
MElrose 7-2133

Globe Ticket Co.
112 North 12th Street
Philadelphia 7, Pa.
LOcust 7-2800

Labelette Co.
216 So. Jefferson Street
Chicago 6, Ill.
FRanklin 2-1215

Laboratory Filling Equipment

Aerosol Machinery Co.
80A Magnolia Avenue
Westbury, L. I., N. Y.

See Page 110

Builders Sheet Metal Works
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

See Pages 127, 128

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Druk-Pak Inc.
36 Merkurstrasse
Zurich, Switzerland

See Page 138

Robert A. Foresman, Jr.
Apparatus Division
1690 Margaret Street
Philadelphia 24, Pa.
PIoneer 3-0596

J. G. Machine Works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373

See Page 112

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

LeMay Machine Co.
276 LeMay Ferry Road
St. Louis 23, Mo.
CIrcle 6-6373

John R. Nalbach Engineering Co.
6139 Ogden Avenue
Chicago 50, Ill.
OLympic 2-0833

See Page 98

Laboratory Equipment (Miscellaneous)

Aerosol Machinery Co.
80A Magnolia Avenue
Westbury, L. I., N. Y.
(hand crimper)

See Page 110

Analytical Measurements, Inc.
585 Main Street
Chatham, N. J.
(pH Meter)

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Bete Fog Nozzle Inc.
309 Wells Street
Greenfield, Mass.
(spray counter)

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390
(hand operated assembly units, lab ware, etc.)

See Pages 127, 128

Fischer & Porter
111 Warminster Road
Hatboro, Pa.
OSborne 5-6000, Ext. 450
(aerosol compatibility tube)

Robert A. Foresman, Jr.
Apparatus Division
1690 Margaret Street
Philadelphia 24, Pa.
PIoneer 3-0569
(torque meter, tank racks, test ovens, density units, etc.)

J. G. Machine Works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373
(nitrogen pressure tester)

See Page 112

T. M. Long Co.
Somerville, N. J.
(pycnometer)

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013
(burette filler, bottle crimper, etc.)

See Page 13

Monsen Refrigeration
228 Montgomery Street
Bloomfield, N. J.
PIlgrim 3-0634
(refrigerated cabinets)

Phoenix Precision Instrument Co.
3803 N. Fifth Street
Philadelphia 40, Pa.
(device for measuring & recording aerosol dust & smoke concentrations)

C. A. Spalding Co.
2242 East Venango Street
Philadelphia 34, Pa.
CUmberland 8-2021
(cap clinching machines)

Leak Detecting Equipment (Electronic and Gas Detectors)

General Electric Co.
1 River Road
Schenectady, N. Y.

Mine Safety Appliances Co.
230 North Braddock Avenue
Pittsburgh 8, Pa.

National Instrument Laboratories Inc.
828 Evarts Street N.E.
Washington, D. C.

(Hot Water Test Tanks)

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

See Pages 126, 127

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Island Equipment Corp.
P. O. Box 380276
Miami 38, Fla.

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

(Container Fill Inspection Systems)

Industrial Nucleonics Corp.
1205 Chesapeake Avenue
Columbus, Ohio

Mixing Tanks (Stainless Steel)

Alsop Engineering Corp.
1000 Center Street
Milldale, Conn.

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

See Pages 126, 127

Lukens Steel Corp.
Coatesville, Pa.

Filpaco Industries Inc.
2426 S. Michigan Avenue
Chicago 16, Ill.
CAlumet 5-8900

Pressure Tester and Venter

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Robins Engineering Co.
208 Maple Avenue
North Haven, Conn.

Production Filling Lines

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
(small production cold fill)

See Pages 126, 127

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

J. G. Machine works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373
(pressure only)

See Page 112

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013
(pressure & cold)

See Page 13

Karl Kiefer Machine Co.
919 Martin Street
Cincinnati 2, O.

See Page 104

LeMay Machine Co.
276 LeMay Ferry Road
St. Louis 23, Mo.
HUdson 1-3050

John R. Nalbach Engineering Co.
6139 Ogden Avenue
Chicago 50, Ill.
OLympic 2-0833

See Page 98

Oil Equipment Laboratories
600 Pearl Street
Elizabeth, N. J.
(pressure only)

See Page 89

Propellant Storage & Handling Systems

Doyle & Roth Manufacturing Co.
136 24th Street
Brooklyn 32, N. Y.

Kartridge-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

H. Emerson Thomas & Associates
P. O. Box 270-B
Westfield, N. J.
ADams 2-2800

Vilter Manufacturing Co.
2217 S. First Street
Milwaukee 7, Wisc.

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

Propellant Storage Tanks

Delta Tank Manufacturing Co.
Subsidiary, General Gas Corp.
Baton Rouge, La.

Master Tank & Welding Co.
2000 S. Front Street
Quincy, Ill.
BAldwin 3-5014

See Page 124

Master Tank & Welding Co.
P. O. Box 5146
Dallas, Tex.
RIverside 7-2441

See Page 124

Pressed Steel Tank Co.
1445 S. 66th Street
Milwaukee 14, Wis.

H. Emerson Thomas Associates
P. O. Box 270-B
Westfield, N. J.
ADams 2-2800

Pumps

Aurora Pump Division
The New York Air Brake Corp.
62 Loucks Street
Aurora, Ill.

Beach-Russ Co.
420 Lexington Avenue
New York 17, N. Y.

Arthur Colton Co. Division
Snyder Corp.
3598 E. Lafayette
Detroit 7, Mich.

See Page 108

Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

See Page 137

Filpaco Industries, Inc.
2426 S. Michigan Avenue
Chicago 16, Ill.
CAlumet 5-8900

Gray Company, Inc.
22 Graco Square
Minneapolis 13, Minn.

JG Machine Works
452 W. 46th Street
New York 36, N. Y.
CIrcle 6-6373

See Page 112

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

The LaBour Co., Inc.
Elkhart, Ind.

Viking Pump Co.
Cedar Falls, Iowa

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

Refrigeration Equipment

Atlas Engineering Co.
1901 White Street
Des Plaines, Ill.
VAnderbilt 4-5433

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

H. Loeb & Son
4600 Lancaster Avenue
Philadelphia, Pa.

Monsen Refrigeration
228 Montgomery Street
Bloomfield, N. J.
PIlgrim 3-0634

Vilter Manufacturing Co.
2217 S. First Street
Milwaukee 7, Wisc.

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

Valve Feeder & Inserter

Consolidated Packaging Machinery Corp.
1400 West Avenue
Buffalo 13, N. Y.

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

PMC Industries, Inc.
293 Hudson Street
Hackensack, N. J.

See Page 124

Pneuma-Serve Ltd.
42 Queen Elizabeth Boulevard
Toronto 14, Ontario, Canada

Weighers & Classifiers

Exact Weight Scale Co.
538 E. Town Street
Columbus 15, O.
CApital 4-6187

Hi-Speed Checkweigher Co.
605 West State Street
Ithaca, N. Y.

Scale Specialties & Systems Inc.
115 Harrison Avenue
Roseland, N. J.
CApital 6-5827

Toledo Scale Co.
1097 Telegraph Road
Toledo 13, O.

MISCELLANEOUS EQUIPMENT

(Aerosol Dispensing Devices, Automatic)

Syncro-Mist Controls, Inc.
270 Madison Avenue
New York, N. Y.
MUrray Hill 5-4650

(Agitator Pellet Feeders)

J. G. Machine Works
452 W. 46th Street
New York 36, N. Y.
CIrcle 6-6373

See Page 112

Kartridg-Pak Machine Co.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

See Page 13

(Fusible Safety Solder Seal—for Valves)

IKI Manufacturing Co.
107 Maple Street
Edgerton, Wis.

See Page 132

(Gas Regulators)

Air Reduction Co.
150 E. 42nd Street
New York 17, N. Y.
MUrray Hill 2-6700

See Page 31

(Product Reclamation Device)

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

See Pages 126, 127

(Spray Can Handle)

Alfco, Inc.
2031 Granville Avenue
Los Angeles 25, Calif.

(Tube Inserting Devices)

Chase Equipment Corp. of N. Y.
47 East 19th Street
New York 3, N. Y.
ORegon 7-3220

(Teflon Transfer Hose)

Aeroquip Corp.
300 S. East Avenue
Jackson, Mich.
STate 2-0361

Resistoflex Corp.
Woodland Road
Roseland, N. J.

(Valve Assembly Unit)

American Special Machine Co.
1401 Western Avenue
Chicago 14, Ill.
EAstgate 7-2220

(Valves for Propellant Transfer)

Bastian-Blessing Co.
4201 W. Peterson Avenue
Chicago, Ill.
MUlberry 5-1121

(Wall Holder)

Lorac Industries
96 MacArthur Lane
Tarrytown, N. Y.
MEdford 1-3432

Useful Products Corp.
24 N. Clover Drive
Great Neck, N. Y.
HU 7-2517

ESSENTIAL OILS—

See "Perfuming Materials"

GASKETS, FLOWED, (for valves)

Bristol Flowed Gasket Co.
P. O. Box 382
Southington, Conn.

Crown Cork & Seal Co.
Can Division
9300 Ashton Road
Philadelphia 36, Pa.
ORchard 3-5100

See Page 11

Dewey & Almy Chemical Division
W. R. Grace & Co.
62 Whittemore Avenue
Cambridge 40, Mass.

Handy Button Machine Co.
2255 S. Rockwell Street
Chicago 8, Ill.
BIshop 7-7400

Sterling Seal Co.
316 West 16th Street
Erie, Pa.
ERie 4-1568

GIBBERELLIC ACID

Abbott Laboratories
Chemical Sales Division
14th and Sheridan Avenue
N. Chicago, Ill.
DExter 6-3080

Eli Lilly & Co.
Agricultural & Industrial Division
740 S. Alabama Street
Indianapolis 6, Ind.

Merck & Co.
Chemical Division
Rahway, N. J.
RAhway 7-1200

S. B. Penick & Co.
100 Church Street
New York 8, N. Y.
CO 7-1970

See Page 60

Chas. Pfizer & Co.
630 Flushing Avenue
Brooklyn 6, N. Y.
EVergreen 8-3800

See Page 79

Velsicol Chemical Corp.
330 E. Grand Avenue
Chicago 11, Ill.
DElaware 7-7383

HAIR SPRAY RESINS

Ciba, Co., Inc.
627 Greenwich Street
New York 14, N. Y.
(Base 325)

General Aniline & Film Corp.
Acetylene Chemicals Division
435 Hudson Street
New York 14, N. Y.
(Polyvinylpyrollidone and PVP/VA Copolymers)

National Starch and Chemical Corp.
Resin Division
750 Third Avenue
New York 17, N. Y.

INSECTICIDE TOXICANTS

American Cyanamid Co.
30 Rockefeller Plaza
New York 20, N. Y.
CIrcle 7-0100
(Malathion)

Chemical Insecticide Corp.
30 Whitman Avenue
Metuchen, N. J.
LIberty 9-2300
(Rotenone resins, Pyrethrum)

E. I. du Pont de Nemours & Co. (Inc.)
Wilmington 98, Del.
(Methoxychlor)

Fairfield Chemical Div.
Food Machinery & Chemical Corp.
441 Lexington Avenue
New York 17, N. Y.
OXford 7-1940
(Pyrethrum Concentrates, Rotenone Resins, and Synergists)
See Page 77

Geigy Agricultural Chemicals Division
Geigy Chemical Co.
P. O. Box 450
Yonkers, N. Y.
(Methoxychlor, DDT, Diazinon)
See Page 26

General Chemical Division
Allied Chemical Corp.
40 Rector Street
New York 6, N. Y.
HAnover 2-7300
(Lindane, DDT, BHC)
See Pages 80, 81

R. W. Greeff & Co.
10 Rockefeller Plaza
New York 20, N. Y.
CIrcle 6-9680
(DDT, DDVP)

Hercules Powder Co.
Agricultural Chemicals Division
984 Market Street
Wilmington 99, Del.
OLympia 8-7211
(Toxaphene, Thanite, Delnav)

Heyden Newport Chemical Co.
342 Madison Avenue
New York 17, N. Y.
(Strobane)

Olin Mathieson Chemical Corp.
10 Light Street
Baltimore, Md.
PLaza 2-8300
(DDT, BHC)

McLaughlin Gormley King Co.
1715 S.E. Fifth Street
Minneapolis, Minn.
(Pyrethrum, Allethrin, and Synergists)
See Page 19

S. B. Penick & Co.
100 Church Street
New York 8, N. Y.
COrtland 7-1970
(Pyrethrum, Synergists and Rotenone Resins)
See Page 60

Prentiss Drug & Chemical Co.
101 West 31st Street
New York 1, N. Y.
PEnnsylvania 6-6766
(Pyrethrum, Synergists, Sulfoxide, and Rotenone Resins)
See Page 14

Rohm & Haas Co.
222 W. Washington Square
Philadelphia 5, Pa.
LOcust 3-9860
(Lethane, Perthane and Rhothane)
See Page 85

Shell Chemical Corp.
380 Madison Avenue
New York 17, N. Y.
JUdson 6-5000
(Aldrin, Dieldrin, and Endrin)

Stauffer Chemical Co.
380 Madison Avenue
New York 17, N. Y.
OXford 7-0600
(DDT, Malathion)

Velsicol Chemical Corp.
330 E. Grand Avenue
Chicago 11, Ill.
DElaware 7-7383
(Chlordane, Heptachlor)

INSECT REPELLENTS

Cowles Chemical Co.
Organic Chemicals Dept.
Cleveland 3, O.
(Diethyl Toluamide)
See Page 22

Glenn Chemical Co.
2735 N. Ashland Avenue
Chicago 14, Ill.
EAstgate 7-9350
(Tabatrex)

Fairfield Chemical Division
Food Machinery & Chemical Corp.
441 Lexington Avenue
New York 17, N. Y.
OXford 7-1940
(Crag Fly Repellent)
See Page 77

Hercules Powder Co.
970 Market Street
Wilmington 99, Del.
(Diethyl Toluamide)

McLaughlin Gormley King Co.
1715 S.E. Fifth Street
Minneapolis, Minn.
(MGK Repellent 11, MGK Repellent 326)
See Page 19

Naugatuck Chemical Division
Dominion Rubber Co.
Elmyra, Ont.
(Diethy Toluamide)

LANOLIN AND LANOLIN DERIVATIVES

American Cholesterol Products, Inc.
Talmadge Road
Edison, N. J.
LIberty 8-6600
See Page 21

American Lanolin Corp.
Railroad Street
Lawrence, Mass.
LAwrence 3-2729

Croda, Inc.
15 East 26th Street
New York 10, N. Y.
MUrray Hill 3-3089

Malmstrom Chemical Corp.
259 Parkhurst Street
Newark 5, N. J.

N. I. Malmstrom & Co.
147 Lombardy Street
Brooklyn 22, N. Y.
EVergreen 8-7626

Robinson Wagner Co.
628 Waverly Avenue
Mamaroneck, L. I., N. Y.

NYLON AND OTHER PLASTIC RESINS (for manufacture of containers)

E. I. du Pont de Nemours & Co.
Polychemicals Division
Wilmington 98, Del.
PRospect 4-1000
(Delrin and Zytel)

Hercules Powder Co.
984 Market Street
Wilmington 99, Del.
OLympia 8-7211
(Profax)

Spencer Chemical Co.
Dwight Building
Kansas City 5, Mo.
(nylon)

ODOR NEUTRALIZERS

Alpine Aromatics
Edison Industrial Center
U. S. Highway 1
Metuchen, N. J.
LIberty 8-7202
(Namée)

See Page 117

International Wax Refining Co.
99 E. Hawthorne Avenue
Valley Stream, N. Y.
(Intasol)

Motomco, Inc.
Terminal Avenue
Clark, N. J.
FUlton 1-3033
(Metazene)

See Page 97

National Cylinder Gas Division
Chemetron Corp.
1200 N. Claremont Avenue
Chicago 22, Ill.
HUmboldt 6-1462

Prentiss Drug & Chemical Co.
101 West 31st Street
New York 1, N. Y.
PEnnsylvania 6-6766
(Meelium)

See Page 14

Solvay Process Division
Allied Chemical Corp.
61 Broadway
New York 6, N. Y.
HAnover 2-7300
(Ozene)

PAINT RESINS

American Cyanamid Co.
30 Rockefeller Plaza
New York 20, N. Y.
CIrcle 7-0100
(Cycopol Resins)

Archer-Daniels-Midland
700 Investors Building
Minneapolis 2, Minn.

Capitol Chemical Co.
4501 W. Haddon Avenue
Chicago 51, Ill.
ARmitage 6-9850

Diamond Alkali Co.
Chlorinated Products Division
300 Union Commerce Bldg.
Cleveland 14, O.
(Darasol)

Keystone Refining Co.
4821-31 Garden Street
Bridesburg, Philadelphia 37, Pa.

Shawinigan Resins Corp.
Springfield 1, Mass.

PERFUMING & ODORIZING MATERIALS

Alpine Aromatics
Edison Industrial Center
U. S. Highway 1
Metuchen, N. J.
LIberty 8-7202

See Page 117

Aromatic Products, Inc.
235 Fourth Avenue
New York 3, N. Y.
OREgon 4-9114

Antoine Chiris Co.
220 East 23rd Street
New York, N. Y.
LExington 2-6035

Compagnie Parento, Inc.
68 Brook Street
Croton-on-Hudson, N. Y.

De Laire, Inc.
242 West 30th Street
New York 1, N. Y.
CHickering 4-7455

Dodge & Olcott, Inc.
180 Varick Street
New York 14, N. Y.
WAtkins 4-3600

See Page 29

Dragoco, Inc.
250 West Broadway
New York 13, N. Y.
CAnal 6-5813

P. R. Dreyer Inc.
601 West 26th Street
New York 1, N. Y.
WAtkins 9-1570

Felton Chemical Co.
599 Johnson Avenue
Brooklyn, N. Y.
HYacinth 7-4464

Firmenich, Inc.
250 West 18th Street
New York 11, N. Y.
WAtkins 9-5520

Fleuroma Inc.
38 W. 21st Street
New York, N. Y.
CHelsea 3-8525

See Page 106

Florasynth Laboratories, Inc.
900 Van Nest Avenue
New York 62, N. Y.
TAlmadge 8-6000

See Page 122

Fries & Fries
110 East 70th Street
Cincinnati, Ohio
VAlley 1-7200

See Page 138

Fritzsche Brothers, Inc.
76 9th Avenue
New York 11, N. Y.
WAtkins 9-4100

See Page 9

Givaudan-Delawanna, Inc.
321 W. 44th Street
New York 36, N. Y.
CIrcle 5-0300

See Page 27

Heine & Co.
601 West 26th Street
New York 1, N. Y.
OREgon 5-9039

Knapp Products, Inc.
178 Hamilton Avenue
Lodi, N. J.
PRescott 9-6945

Lautier Fils Inc.
321 Fifth Avenue
New York 16, N. Y.
MUrray Hill 9-7980

Magnus, Mabee & Reynard, Inc.
16 Desbrosses Street
New York 13, N. Y.
WAlker 5-1110

See Page 90

J. Manheimer
214 East 21st Street
New York 10, N. Y.
GRamercy 5-4640

Norda Essential Oil & Chemical Co.
601 West 26th Street
New York 1, N. Y.
WAtkins 4-7878

See Page 99

Noville Essential Oil Co.
1312 Fifth Street
North Bergen, N. J.
UNion 7-9080

Orbis Products Corp.
601 West 26th Street
New York 1, N. Y.
WAtkins 4-7660

S. B. Penick & Co.
100 Church Street
New York, N. Y.
COrtland 7-1970

See Page 60

Perfumery Associates, Inc.
160 East 56th Street
New York 22, N.Y.
PLaza 3-8618

Perry Brothers
61-12 32nd Avenue
Woodside 77, L. I., N. Y.
RAvenswood 1-3636

Polak & Schwarz, Division
International Flavors & Fragrances, Inc.
667 Washington Street
New York 14, N. Y.
WAtkins 4-5570

Polak's Frutal Works
33 Sprague Avenue
Middletown, N. Y.
MIddletown 2-1065

See Page 17

Reynaud Ltd.
355 W. 52nd Street
New York 19, N. Y.
CIrcle 5-4430

Rhodia Inc.
60 E. 56th Street
New York 22, N. Y.
PLaza 3-4850

P. Robertet Inc.
221 Fourth Avenue
New York 3, N. Y.
ORegon 3-7585

See Page 32

Roubechez, Inc.
8 East 12th Street
New York 3, N. Y.
ALgonquin 5-7262

Roure-Dupont, Inc.
366 Madison Avenue
New York, N. Y.
VAnderbilt 6-5830

See Page 61

Schimmel & Co.
601 West 26th Street
New York 1, N. Y.
WAtkins 4-1393

See Page 114

Shulton, Inc.
Fine Chemicals Division
630 Fifth Avenue
New York 20, N. Y.
CIrcle 5-6263

Standard Aromatics
88 University Place
New York, N. Y.
ORegon 5-4333

Synfleur Scientific Laboratories
Monticello, N. Y.
Monticello 84

See Page 103

Syntomatic Corp.
114 East 32nd Street
New York 16, N. Y.
MUrray Hill 3-7618

Tombarel Products Corp.
725 Broadway
New York 3, N. Y.
GRamercy 7-4530

Ungerer & Co.
161 Ave. of the Americas
New York 13, N. Y.
ALgonquin 5-4660

van Ameringen-Haebler Division
International Flavors & Fragrances, Inc.
521 West 57th Street
New York, N. Y.
CIrcle 6-2700

Van Dyk & Co.
11 William Street
Belleville, N. J.
PLymouth 9-3225

Albert Verley & Co.
1375 E. Linden Avenue
Linden, N. J.
WAbash 5-1105

Verona Aromatics Division
Verona-Pharma Chemical Co.
26 Verona Avenue
Newark 4, N. J.
HUmboldt 3-3200

R. D. Webb & Co.
137 Boston Post Road
Cos Cob, Conn.

PRODUCT CONCENTRATE (Especially for Aerosol Packaging)

Chemical Compounding Co.
262 Huron Street
Brooklyn, N. Y.

Hysan Products Co.
932 West 38th Street
Chicago, Ill.
VIrginia 7-1168

See Page 128

Pesticide Sales Corp.
415 Lexington Avenue
New York 17, N. Y.
MUrray Hill 7-8313

Private Brands Inc.
300 South Third Street
Kansas City 18, Kan.
FInley 2-8780

Propel Chemicals Inc.
262 Huron Street
Brooklyn 22, N. Y.
EVergreen 9-5531

Universal Spray Can Corp.
80 Washington Street
New York 6, N. Y.
DIgby 4-8260

Uncle Sam Chemical Co.
575 W. 131st Street
New York 27, N. Y.
AUdubon 6-2510

Wilco Co.
4425 Bandini Boulevard
Los Angeles 23, Calif.
ANgelus 3-4105

PROPELLANTS

(Argon)

Air Reduction Sales Co. Inc.
150 East 42nd Street
New York 17, N. Y.
MUrray Hill 2-6700

See Page 31

Linde Co. Division
Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000

National Cylinder Gas Division
Chemetron Corp.
1200 N. Claremont Avenue
Chicago 22, Ill.
HUmboldt 6-1462

(Fluorinated Hydrocarbons)

E. I. du Pont de Nemours & Co.
Freon Products Division
Wilmington 98, Del.
OLympia 4-5121
(Freon)

See Page 8

General Chemical Division
Allied Chemical Corp.
40 Rector Street
New York 6, N. Y.
HAnover 2-7300
(Genetron)

See Pages 80, 81

Hostachem Corp.
350 Fifth Avenue
New York 1, N. Y.
LOngacre 4-3530
(Frigen)
Agents for Farbwerke Hoechst AG

Imperial Chemical Industries, Ltd.
Millbank
London, S.W. 1, England
(Arcton)

See Page 24

Pennsalt Chemicals Corp.
3 Penn Center Plaza
Philadelphia 2, Pa.
LOcust 4-4700
(Isotron)

See Page 12

Union Carbide Chemicals Co.
Division, Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000
(Ucon)

See Page 18

(Methylene Chloride)

American Mineral Spirits Co.
Mountain Avenue
Murray Hill, N. J.
CRestview 3-0700

Diamond Alkali Co.
925 Euclid Avenue
Cleveland 14, Ohio
MAin 1-6100

Dow Chemical Co.
Midland, Mich.
TEmple 2-2311

See Page 33

E. I. du Pont de Nemours & Co.
Electro Chemicals Dept.
Wilmington 98, Del.
OLympia 4-5121

Frontier Chemical Co.
Municipal Airport Terminal Bldg.
Wichita 15, Kan.

General Chemical Division
Allied Chemical Corp.
40 Rector Street
New York 6, N. Y.
HAnover 2-7300

See Pages 80, 81

Kolker Chemical Corp.
600 Doremus Avenue
Newark 5, N. J.
MArket 2-4085

Stauffer Chemical Co.
380 Madison Avenue
New York 17, N. Y.
OXford 7-0600

(Nitrogen)

Air Reduction Co. Inc.
150 East 42nd Street
New York 17, N. Y.
MUrray Hill 2-6700

See Page 31

Linde Co. Division
Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000

National Cylinder Gas Division
Chemetron Corp.
1200 N. Claremont Avenue
Chicago 22, Ill.
HUmboldt 6-1462

Ohio Chemical & Surgical Equipment Co.
Division, Air Reduction Co.
1400 E. Washington Avenue
Madison 10, Wisc.

See Page 31

(Soluble Gases—including Nitrous Oxide, Carbon Dioxide and CO_2-N_2O Mixtures)

Pure Carbonic Co. Division
Air Reduction Co., Inc.
150 East 42nd Street
New York 17, N. Y.
MUrray Hill 2-6700

National Cylinder Gas Division
Chemetron Corp.
1200 N. Claremont Avenue
Chicago 22, Ill.
HUmboldt 6-1462

Ohio Chemical & Surgical Equipment Co.
Division, Air Reduction Co.
1400 E. Washington Avenue
Madison 10, Wisc.

See Page 31

Standard Air Co.
335 Paterson Plank Road
Carlstadt, N. J.
GEneva 8-5449

S. S. White Dental Mfg. Co.
211 S. 12th Street
Philadelphia 5, Pa.
WAlnut 3-1621

(Butane and Propane)

Cities Service Oil Co.
Bartlesville, Okla.

Phillips Petroleum Co.
Special Products Division
Bartlesville, Okla.

SHELLAC

Acme Shellac Products Co.
108 Blanchard Street
Newark 5, N. J.
MArket 3-7707

Bradshaw Praeger & Co.
3248 West 47th Place
Chicago 32, Ill.
LAfayette 3-2050

Gillespie-Rogers-Pyatt Co.
75 West Street
New York 6, N. Y.
WHitehall 3-9740

Mac-Lac Co.
33 Rector Street
New York 6, N. Y.
WHitehall 3-5230

Mantrose Corporation
1 Hanson Place
Brooklyn 1, N. Y.
STerling 8-1400

F. H. Paul & Stein Brothers
235 5th Avenue
New York, N. Y.
MUrray Hill 4-6370

William Zinsser & Co.
516 West 59th Street
New York 19, N. Y.
COlumbus 5-2800

SILICONES

Dow, Corning Corp.
Midland, Mich.

General Electric Co.
Silicone Products Dept.
Waterford, N. Y.
ADams 8-3330

Union Carbide Corp.
Silicones Division
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000

TRICHLOROETHANE

American Mineral Spirits Co.
Mountain Avenue
Murray Hill, N. J.
CRestview 3-0700

Dow Chemical Co.
Midland, Mich.
TEmple 2-2311

See Page 33

Merchants Chemical Co.
60 East 42nd Street
New York, N. Y.
MUrray Hill 2-8712

Union Carbide Chemicals Co. Division
Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000

See Page 18

MISCELLANEOUS RAW MATERIALS

(Agitating Balls for Paints and Powders)

Sterling Commercial Steel Ball Corp.
Box 401
Sterling, Ill.
MA 5-2750

(Anhydrous Alcohol)

Commercial Solvents Corp.
260 Madison Avenue
New York 17, N. Y.
LExington 2-6420

U. S. Industrial Chemicals Co. Division
National Distillers and Chemical Corp.
99 Park Avenue
New York 16, N. Y.
OXford 7-0700

(Antibiotics)

Chemo Puro Manufacturing Co.
150 Doremus Avenue
Newark 5, N. J.

See Page 109

Ciba, Inc.
627 Greenwich Street
New York 14, N. Y.

Lederle Laboratories Division
American Cyanamid Co.
Pearl River, N. Y.

Eli Lilly & Co.
740 S. Alabama Street
Indianapolis 6, Ind.

Merck & Co.
Rahway, N. J.
RAhway 7-1200

S. B. Penick & Co.
N. Y. Quinine Division
100 Church Street
New York 8, N. Y.
CO 7-1970

See Page 60

Chas. Pfizer & Co.
Chemical Sales Division
630 Flushing Avenue
Brooklyn 6, N. Y.
EVergreen 8-3800

See Page 79

Wallerstein Co.
Wallerstein Square
Mariner's Harbor
Staten Island 3, N. Y.

(Foam Stabilizers)

Ultra Chemical Works Division
Witco Chemical Co.
2 Wood Street
Paterson, N. J.
ARmory 4-0100

S. B. Penick & Co.
100 Church Street
New York, N. Y.
COrtland 7-1970

See Page 60

(Pharmaceuticals—antioxidants and bacteriostats)

Catalin Corporation of America
One Park Avenue
New York 16, N. Y.
MUrray Hill 3-2100

(Product Stabilizers)

Lewis-Harwood & Co., Inc.
320 Fulton Avenue
Hempstead, N. Y.

(Quaternary Ammonium Compounds)

Fine Organics Inc.
205 Main Street
Lodi, N. J.

General Aniline & Film Corp.
Antara Chemicals Division
435 Hudson Street
New York 14, N. Y.

Miranol Chemical Co.
277 Coit Street
Irvington, N. J.

Onyx Oil & Chemical Co.
190 Warren Street
Jersey City 2, N. J.

See Page 16

Rohm & Haas Co.
222 Washington Street
Philadelphia 5, Pa.
LOcust 3-9860

See Page 85

(Snow Pellets)

Baltic Chemical Co.
115-119 Fourth Avenue
Brooklyn 17, N. Y.
NEvins 8-6401

See Page 88

(Thickening Agents)

American Cyanamid Co.
30 Rockefeller Plaza
New York 20, N. Y.
CIrcle 7-0100

B. F. Goodrich Chemical Co.
3135 Euclid Avenue
Cleveland 15, O.

Nuodex Products Co. Division
Heyden Newport Chemical Corp.
Elizabeth, N. J.

S. B. Penick & Co.
100 Church Street
New York, N. Y.
COrtland 7-1970

See Page 60

R. T. Vanderbilt Co.
230 Park Avenue
New York 17, N. Y.

VALVES, AEROSOL
(General Purpose)

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880

See Page 3

Clayton Corp.
4205 Forest Park Boulevard
St. Louis 8, Mo.
JEfferson 5-6226

See Page 15

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

See Page 23

Newman-Green, Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000

See Pages 6, 7

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900

See Page 89

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

See Page 10

Pres-Pak Valve Corp.
2060 Happy Lane
St. Louis 25, Mo.
TWinbrook 2-1135

Risdon Manufacturing Co.
Naugatuck, Conn.
PArk 9-8231

See Page 107

A. Schrader's Son
Div. Scovill Mfg. Co., Inc.
470 Vanderbilt Avenue
Brooklyn, N. Y.
NEvins 8-4000

See Page 62

Seaquist Manufacturing Corp.
First Street
Cary, Ill.
MEcury 9-7533

SAFCA (France)
7 Rue de Louvre
Paris, France

SAFCA (England)
Milbanke Way
Bracknell, Berkshire, England
(Other branches in Italy, Brazil, Spain and Argentina)

Valve Corporation of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

See Back Cover

VALVES, AEROSOL
(Foam)

Aerated Container Corp.
Dairy Whip Division
39 So. LaSalle Street
Chicago, Ill.
CEntral 6-7460

See Page 25

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880

See Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

See Page 23

Clayton Corp.
4205 Forest Park Boulevard
St. Louis 8, Mo.
JEfferson 5-6226

See Page 15

Clinton Valves, Inc.
35135 Groesbeck Highway
Mt. Clemens, Mich.

See Page 93

LeMay Valve Co.
276 LeMay Ferry Road
St. Louis 23, Mo.
HUdson 1-3050

Newman-Green, Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000

See Pages 6, 7

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900

See Page 89

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

See Page 12

Pres-Pak Valve Corp.
2060 Happy Lane
St. Louis 25, Mo.
TWinbrook 2-1135

Pressure Dispensers Inc.
7968 Melrose Avenue
Los Angeles 46, Calif.
OLive 3-2620

Risdon Manufacturing Co.
Naugatuck, Conn.
PArk 9-8231

See Page 107

Seaquist Manufacturing Corp.
First Street
Cary, Ill.
MEcury 9-7533

Super Whip Valve Co.
4101 N. Rockwell Street
Chicago 18, Ill.
JUniper 8-6300

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

See Back Cover

VALVES, AEROSOL (Food)

Aerated Container Corp.
Dairy Whipt Division
39 So. LaSalle Street
Chicago, Ill.
CEntral 6-7460

See Page 25

Calmar Distributors, Inc.
5020 Spring Grove
Cincinnati, O.

Clayton Corp.
4205 Forest Park Boulevard
St. Louis 8, Mo.
JEfferson 5-6226

See Page 15

Clinton Valves, Inc.
35135 Groesbeck Highway
Mt. Clemens, Mich.

See Page 93

LeMay Machine Co.
276 LeMay Ferry Road
St. Louis 23, Mo.
HUdson 1-3050

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900

See Page 89

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

See Page 12

Pres-Pak Valve Corp.
2060 Happy Lane
St. Louis 25, Mo.
TWinbrook 2-1135

Risdon Manufacturing Co.
Naugatuck, Conn.
PArk 9-8231

See Page 107

Super Whip Valve Co.
4101 N. Rockwell Street
Chicago 18, Ill.
JUniper 8-6300

VALVES, AEROSOL (Glass and Plastic Bottle)

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880

See Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

See Page 23

Newman-Green, Inc.
501 Interstate Road
Addison, Ill.
TErrace 2-1000

See Pages 6, 7

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

See Page 12

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231

See Page 107

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

See Back Cover

VALVES, AEROSOL (Mechanical Break-Up)

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880
See Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553
See Page 23

Newman-Green, Inc.
501 Interstate Road
Addison, Ill.
TErrace 2-1000
See Pages 6, 7

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500
See Page 12

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231
See Page 107

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165
See Back Cover

VALVES, AEROSOL (Metered)

Dill Manufacturing Co.
700 East 82nd Street
Cleveland, O.
UTah 1-3200

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553
See Page 23

Hampton Products Co.
Hestor Street
Portland, Pa.
TWin Oaks 7-6103

Newman-Green, Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000
See Pages 6, 7

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500
See Page 12

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231
See Page 107

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165
See Back Cover

VALVES, AEROSOL (Paint)

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880
See Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553
See Page 23

Newman-Green, Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000
See Pages 6, 7

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900
See Page 89

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500
See Page 12

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231
See Page 107

Seaquist Manufacturing Corp.
First Street
Cary, Ill.
MEcury 9-7533

Sprayon Products Co.
2075 East 65th Street
Cleveland, O.
See Page 102

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165
See Back Cover

VALVES, AEROSOL (One-Shot)

Clayton Corp.
4205 Forest Park Boulevard
St. Louis 8, Mo.
JEfferson 5-6226
See Page 15

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900
See Page 89

A. Schrader's Son
Div. Scovill Mfg. Co., Inc.
470 Vanderbilt Avenue
Brooklyn, N. Y.
NEvins 8-4000
See Page 62

VALVES, AEROSOL (Ultrafine Particle Size)

Aeroprojects, Inc.
310 East Rosedale Avenue
West Chester, Pa.
OWen 6-4710

Thomas J. Mahon, Inc.
75 Brayton Street
Englewood Cliffs, N. J.
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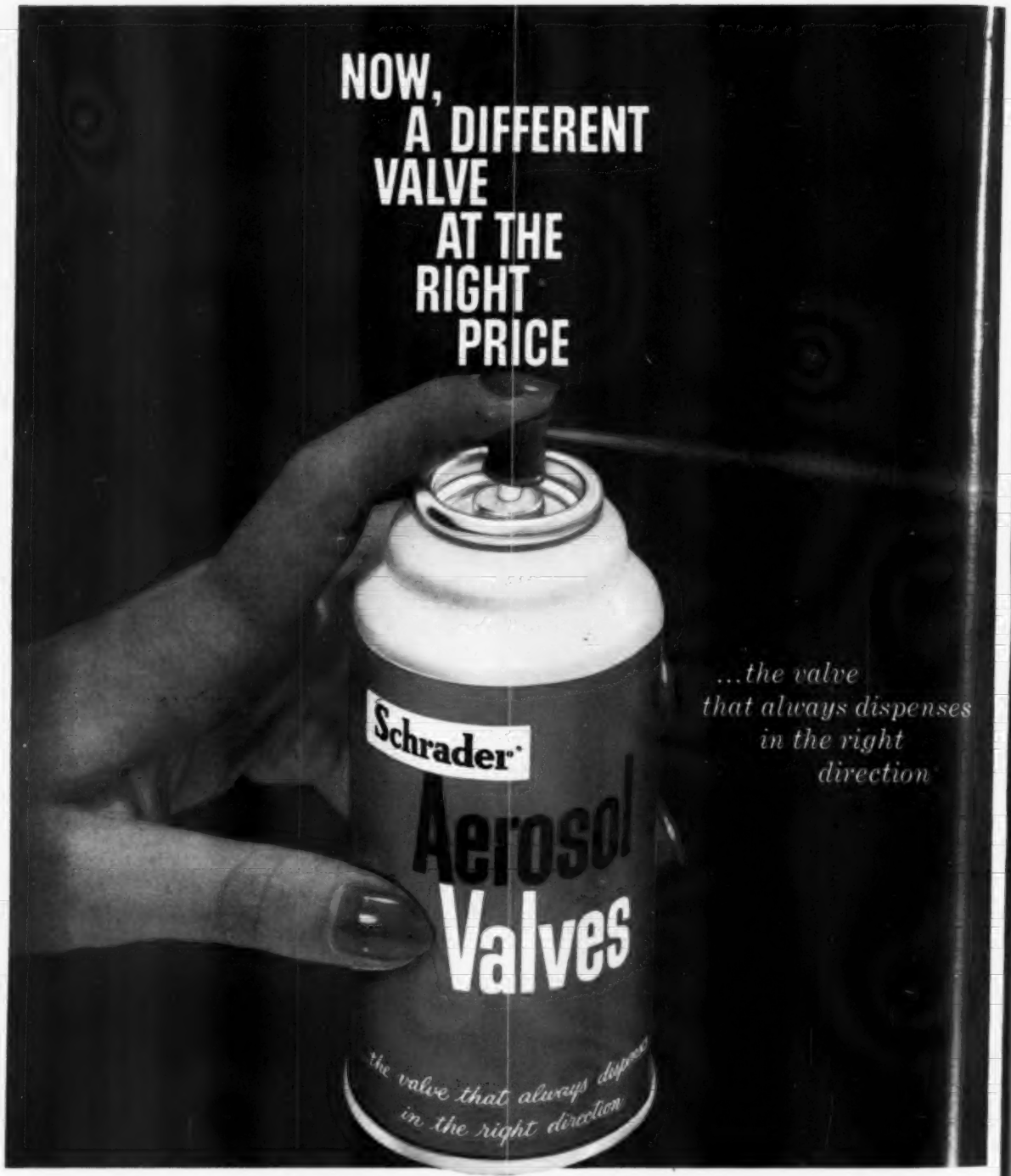

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EDITORIALS

The Third Aerosol Buyer's Guide . . .

This year's Aerosol Buyer's Guide, this magazine's third such annual source listing for the aerosol industry, has been given a number of refinements to bring it up to date in line with the tremendous growth of the industry. For instance, the growing role of food aerosols has necessitated a new and separate listing for aerosol food valves. Also, the equipment section has been "beefed up" with the addition of new categories, new firms, and in some cases a reclassification of categories to take in many types of equipment within a single category.

Once again all possible primary sources—supplier's bulletins, trade association listings, publications in related fields—have been checked against last year's guide; and where there was doubt about the true function of a particular company letters of inquiry were sent out.

In all categories there was an effort made to list only *primary* producers or suppliers of the material, equipment, component, or service, thus eliminating branch or district offices, sales representatives, agents and other "secondary" sources. As will be seen by a quick scanning of nearly every category, this was done in the interest of making the guide more practical to use, and at the same time to keep it within a manageable size limit.

As happened with last year's guide, there were a number of new entries, deletions, and changes in aerosol activity or title for certain companies. Where it was physically possible (and where our sources were working properly) these changes have been recorded in the 1959-1960 Buyer's Guide.

Despite all possible precautions, there are undoubtedly some corrections that may have been overlooked—or, what is even more regrettable, some legitimate suppliers who may have been inadvertently omitted from the guide. For these the staff of this magazine apologizes in advance, and invites the "offended parties" to inform us so that corrections can be made by next October.

"Actual" Contents of an Aerosol . . .

Prompted by criticism in *Consumer Reports* and similar non-trade periodicals, a volume measurement problem is brewing for the aerosol industry. The August issue of *Consumer Reports* ("Aerosols in Review" in the September *Aerosol Age*, page 75) asked: "Does net weight of aerosol products mean product plus propellant? Is there a reasonable proportion to be maintained between propellant and product? Too much propellant can make this package misleading. Too little can mean waste of the aerosol product—the amount that remains in the container after the propellant is exhausted. And what about such products as paint, which traditionally have been sold by volume?"

Acually, for some time the Food and Drug Administration has been somewhat concerned with this problem, and there are indications that the Bureau of Standards of the U.S. Department of Commerce is also becoming interested. The feeling is that some consumers may be misled by the stated weight or volume on an aerosol package, and that the industry should prescribe a simple, workable labeling technique to amend this shortcoming.

A test pharmaceutical lot is run through the Armstrong line to observe filling accuracies, performance of equipment, and other significant factors. Line and supervisory personnel check on every possible factor.

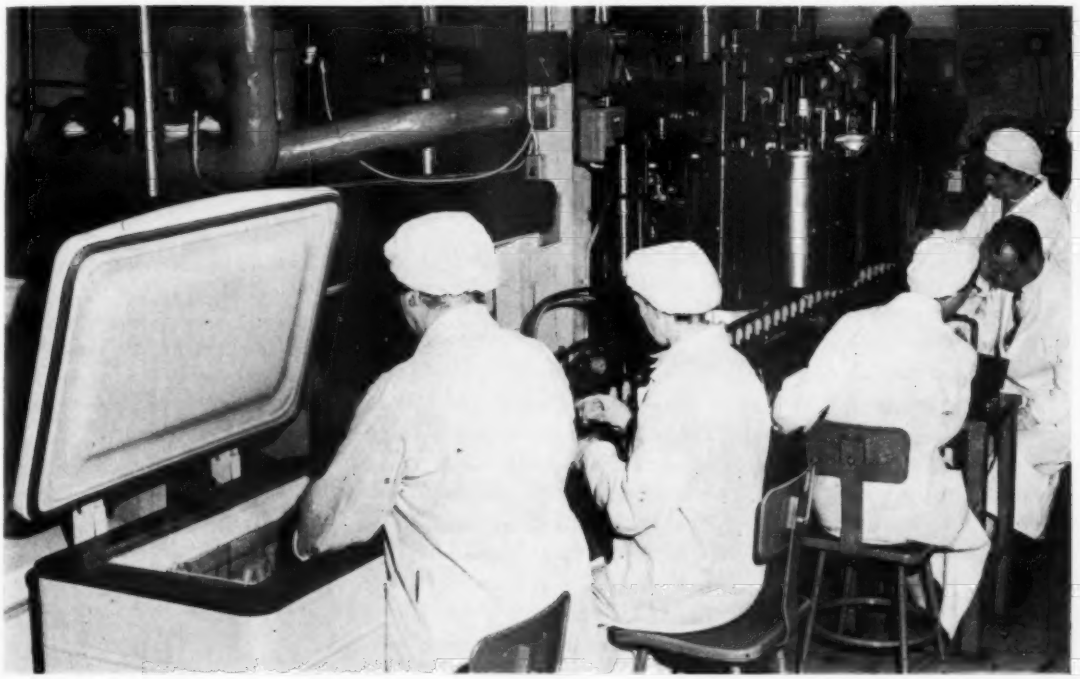
Armstrong Laboratories' Pharmaceutical Installation

THOUGH pharmaceutical filling is a relatively new activity to the aerosol field, one New England custom filler has already managed to acquire an outstanding reputation throughout the pharmaceutical industry for exceptional filling accuracy and superb quality control. Located in West Roxbury, Mass., a suburb of Boston, the Armstrong Laboratories Division of Armstrong Knitting Mills has, with its own personnel, built a special sanitary filling line which has come to be regarded as a model of its kind by major pharmaceutical marketers.

Although a description of how Armstrong Knitting Mills, 47-year old importer and marketer of wool products, got into the aerosol industry probably rates an article in itself, suffice it to say that during the recent New England textile depression (1954), the firm began looking for another manufacturing activity to take advantage of its unused plant space and the excellent labor resources of West Roxbury. Under the direction of John Armstrong (who with his brother Robert is a partner in the firm) the company set up an aerosol line, and by 1956 was employing a full-time aerosol crew. This first line is still the "bread and butter" operation of Armstrong Laboratories, and all of the company's high volume large metal container filling orders are done on this line.

With the exception of a Burt labeler, Kiwi coder, stainless tanks, etc., this pressure filling line was built entirely by a local contract machine builder, working under the direction of Armstrong engineers. Each component is equipped with its own centering device, and the containers move on a chain-over-magnet conveyor through the hot water bath. After the containers emerge from the hot water bath, they are blown dry by and air drying unit, also devised by the company's engineers.

During actual operation, the containers are prechilled in the icebox (foreground) and then started down the line. Personnel, gowned in white, watch each operation and then check out each container after they are run through.



One special feature of this installation is the method by which special mix propellant tanks are moved in and out of position. This is accomplished efficiently by use of an overhead monorail system, with the one-ton propellant tanks being picked up at the shipping platform and quickly shunted into position next to the line's propellant charger. Also somewhat unique is the propellant bulk storage system, which is Armstrong's own version of a system designed for Arthur D. Little for handling liquid helium.

BUT as complete and as efficient as is this older pressure filling line, it must take a back seat to the company's gleaming pharmaceutical line. This unit, which is a combination cold and pressure line, is housed in its own brightly colored tile-floor room on the second floor of the plant, and deservedly the showplace of the company's entire operations.

In numbers of personnel, this pharmaceutical line probably exceeds that of any in the industry. During normal operations (especially while filling a critical product) the working force for just this one line is comprised of 15 women and 2 men. All of these are closely supervised by Ed Burgard, production manager; Erskine Kelley, pharmaceutical line superintendent; and Sam Miln, chief chemist. Everyone is gowned in white uniforms and rubber gloves, with the women also wearing white dust caps.

In order to properly understand the line's operation, it must be described in logical sequence.

The pharmaceutical product concentrate arrives from the marketer at the Armstrong Laboratories' plant in carboys or stainless steel drums. The concentrate is chilled, along with the containers for the aerosol packages, in special refrigeration units. These units give the company a capacity to chill 16,000 small glass, stainless steel, or aluminum containers. This prechilling is considered an important operation, since it prevents excess vaporization in either the product or container during the filling operation.

The containers are placed in position at the beginning of the line and first pass under a diaphragm-type air cleaner, which blows out dust and other impurities without introducing oil or other matter into the container.

Next they move along to the stainless steel filling units (each equipped with Teflon and pyrex fittings). These units were built from the ground up according to Armstrong Laboratory specifications, and achieve a filling accuracy which Armstrong believes is unique in an aerosol plant.

Then valves are placed in the containers (a hand operation), they pass under a crimper, and on to the pressure filler if the pressure filling method is used. As with the other line components, this unit was constructed for filling accuracy and

cleanliness rather than for speed. The entire line has been laid out so that it can be quickly converted to cold filling, or nitrogen can be switched into the regular pressure filling unit.

As the filled, crimped, charged containers emerge from the end of the line, they do not go directly into a water bath, as is the custom on so many aerosol lines. Instead they are placed by hand in wire baskets (250 to a basket) and then placed in a water bath at (130°) on a controlled time basis. From there each is blown dry in preparation for further testing.

Though many of the container handling operations are done manually, the line has a number of automatic features which are not readily visible to the casual observer. For instance, the ingredient is pumped from the cooling refrigerator to the filling kettle by means of nitrogen flushing. Both the product filler and the gasser are equipped with a magnetic float switch which automatically keeps the unit filled within one-sixteenth of an inch of a set level. This float switch actuates the propellant compressor or the product pump so that the kettle is quickly filled to the desired level. Then too, the whole system is devised so that the circulating propellant is pumped around the ingredient filler to hold the batch vats at a set low temperature.

The visitor to the Armstrong plant will probably be most impressed by the painstaking quality control procedures. In fact, most of the personnel on the line are engaged in some phase of quality control, and the company's boast about 100% inspection during each phase of the operation is borne out by the evidence.

For instance, one female quality control operator works continuously checking the fill of the ingredient filler and propellant charger. At various places along the line she periodically introduces empty tared containers and then carefully weighs them. This is done in lots of five at a time to get a statistical picture of what the average fill and range of each unit is at any given time. If her weight readings are over or under a specified figure, the line is shut down immediately and the filler or charger checked and corrected.

Following the water bath and drying, each unit is spray tested into forced draft hoods. For inhalant type pharmaceuticals, each unit is spray tested by use of special test mouthpieces, and then the new mouthpiece, also separately tested, is put on. For glass and coated glass containers, a back lighting system is used and each is visually checked to be sure its liquid level conforms to a set standard.

To enable the customer to maintain his own quality control, each day samples from each filling batch may be mailed special delivery from the Armstrong plant. Each shipping carton of filled containers is carefully marked with the date, carboy number, control, valve, and charge number, thus giving the marketer a further check on his product's quality.

A daily work sheet is kept on rejects from the various stations in the filling line, and each is listed and classified according to reason for reject. These records (and in many cases, the containers as well) are passed on to the customer so that his research personnel can check on Armstrong's operations with his product.

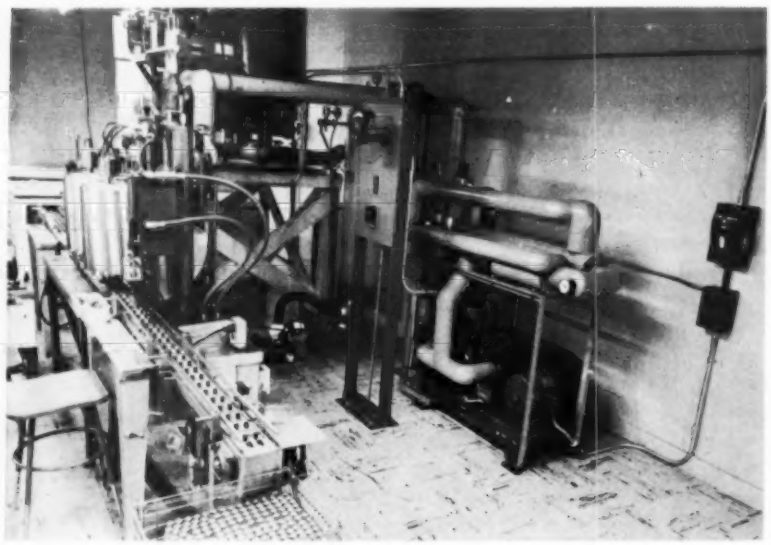
Naturally, there is much paperwork associated with such painstaking quality control procedures. Statistics are kept on all phases of the filling operation, the main attributes being weights and pressures. Each day's statistics from a variety of quality control stations are assembled into a permanent record which can be studied by Armstrong chemists and those of the customer. This enables the company's technicians to check back on past performances in duplicating a previous order; and, by studying the statistics, to improve the performance of the various line components.

Quality control doesn't end with the many line personnel involved in the task. In Armstrong's well equipped research laboratory, units from each filling batch are kept in a constant temperature bath (at 70°) to check for pressures or other observations. The laboratory also is charged with the responsibility of being helpful in formulating for the prospective customer, although a good many of the major pharmaceutical marketers do their own initial formulation work.

John Armstrong, under whose direction the filling line was built and is presently operated, described some of the sanitary features of the line. "In

(*Continued on Page* 131)

Photograph of the rear area of the pharmaceutical line, showing some of the company's intricate systems of pumps and cooling apparatus. The float switches, referred to in the article above, are located at the upper left portion of the photograph. The main control panel is in the center.



Butane and Propane as Aerosol Propellants . . . II

a symposium of opinions on relative safety, danger to the consumer, etc.

Just how safe *are* butane, propane, and the other hydrocarbon propellants? Is the use of such propellants inherently dangerous to the consumer, or has the flammability of the propellants been overemphasized?

In the interest of clearing up some of these questions, *Aerosol Age* here continues a round-up of qualified opinions from suppliers, fillers, and others in the industry. The second installment, printed below, includes views of a filler and a propellant supplier who have had wide experience with these propellants. In coming issues opinions will be printed from others who may have opinions contrary to those below. Qualified persons who have had direct experience with the hydrocarbons are invited to contribute *their* opinions to the symposium—The Editor.

By **Montfort A. Johnsen**
Technical Director
Peterson Filling & Packaging Co.
Danville, Ill.

THE hydrocarbons took ten long years to get here, and they came by strange and devious paths—piggybacking new products, offering a way around patent bottlenecks; sometimes just plain economics. But now they have arrived. Very definitely so! And it behooves everyone in the aerosol industry to give them a long, calculating look.

The hydrocarbons are versatile. They are no longer just, "those propellants one uses for window cleaners and such." Try and think of an aerosol where even a small percentage cannot be used to advantage. A few residual, high-oil formulas perhaps. That's about all.

In spite of their obvious advantages, the hydrocarbons can be pernicious bedfellows. Handle them with exquisite care or they may ruin either your plant or your reputation! Luckily, aerosol technology has kept pace with them in most areas. But in others: corrosion, I.C.C. regulations, odor control . . . our information is sadly — and dangerously — lacking.

Judging from laboratory work and current trends it looks like propane and iso-butane are shaping up as the real workhorses of the hydrocarbon family, followed by n-butane for low-pressure applications. Each one is available in a half-dozen grades, but only the low-priced technical and commercial varieties are widely used. To those accustomed to the foolproof quality of the halo-carbon propellants, the variation between shipments of hydrocarbons comes as quite a shock. Isobutane usually has a mild, ethereal odor that is almost a pleasure to whiff. But at other times . . . And tank-trucks of propane can easily be "off" in pressure by ten pounds or more, due to ethane. Ethane contaminates propane up to 3%, and since it has a pressure of 530 psi-g at 70°F., its effect on propane is significant. As a final example, special techniques must be used to take accurate pressures of propane-type aerosols, especially when the ethane content is high, since both these gases have some non-condensable gas characteristics. Under conditions like these it is impossible for a filler to maintain reasonable quality levels for hydrocarbon aerosols unless extensive research and control facilities can be focused on their special problems.

Pressure loading is now the standard production method for getting hydrocarbons into aerosols. Obviously the loading center must be designed with care by qualified engineers. Ironclad maintenance and safety procedures must be posted. A well indoctrinated supervisor should monitor the loading room during production, and management should keep in close touch. If an ultimate fire or explosion takes place, it is usually because somebody got lazy and failed to follow the rules.

Except for water-based products, we feel that hydrocarbons will never replace more than minor amounts of the conventional propellants. Most formulas simply cannot hold more than about 10% butane or propane without "going flammable." By using special valves and formulation tricks it is possible to raise this limit a little, but not much. A good working policy is to leave a margin of safety between the finished aerosol and the flammable limit. This allows for loading variations, distillation effects in tanks of mixed propellants, delivery rate variations and so forth.

Once a hydrocarbon product is properly formulated and packaged, it is not a bit more dangerous than any other aerosol. After millions of cans, we have yet to hear of any complaint leveled against the hydrocarbons themselves.

The future is interesting to contemplate. Higher pressures will no longer mean increased propellant costs, so hydrocarbon aerosols may be expected to gravitate into the "2P" pressure range, where performance is bet-

ter and more consistent. The I.C.C. regulations will undoubtedly be extended in scope and accuracy. They will include meter-spray products, foams, multiphase items and other hard-to-fit aerosols that cannot be classified at present. In spite of the added dangers, refrigeration methods offer advantages that cannot be overlooked indefinitely. Under the increased demands from production, safety devices will gradually be automated and will start to incorporate line control features. In short, things will grow more complex and technical than ever; one of the infallible signs of a healthy industry.

•

By A. H. Lawrence
E. I. du Pont de Nemours & Co., Inc.
"Freon" Products Division
Wilmington, Del.

WHAT price tag can you place on safety?

How much of a gamble should you, or are you, willing to take, from a potential consumer liability standpoint, in using a flammable propellant in the aerosol products you manufacture and market?

Is the saving of a fraction of a cent to a few pennies per package worth the risk of a consumer accident that might reuslt in a damage suit in which the legal costs alone . . . aside from compensatory awards to the plaintiff . . . could be more than your long term propellant savings?

Those are the questions we feel any aerosol loader or marketer must answer to his own satisfaction in deciding whether or not the slight savings inherent in using butane, propane, or some other flammable propellant instead of the nonflammable, nonexplosive fluorinated hydrocarbons are justified.

The Du Pont Co. quite naturally is prejudiced toward the fluorinated hydrocarbons because of its long-standing concern over safety and its reluctance to market any consumer product, regardless of the potential profit, which might be unsafe or hazardous in the hands of a customer. In fact, the original research which led to the discovery of "Freon" refrigerants was undertaken solely to find a *safe* refrigerant. And the success of our business in "Freon" compounds has been due in great measure to their safety, based upon their nonflammability, nonexplosiveness, and extremely low toxicity. Largely because the public was willing to pay a little more for their built-in safety, "Freon" refrigerants have displaced lower-priced but more hazardous refrigerants such as ammonia and sulfur dioxide.

The fact that aerosol loaders and marketers, for the first decade of the pressure-packaging business' history, chose only the fluorinated hydrocarbons as propellants in their products—even though propane and butane were available at lower cost—lends credence to our belief that safety normally is an important consideration. Frankly, we think that the phenomenally consistent growth in purchase and acceptance of aerosol products has been due in no small measure to the fact that, as a product group, they have had an excellent safety record.

Because propane and butane are not only extremely flammable but also extremely volatile, a great many hazards exist at the product manufacturing level alone . . . in shipping, bulk storage, operation of loading lines, and storage of large quantities of finished products. To illustrate the potential hazards, one need only look at the record during the last several months of 1959 to find a number of serious accidents involving handling of propane and butane in bulk quantities.

On June 2, for example, a truck transporting propane caught fire and exploded near Pottsville, Pa., killing 11 persons and injuring 15, some of them standing 300 feet from the explosion. Less than a month later, two railroad tank cars of butane exploded on a railroad trestle above a river recreation beach near Meldrim, Ga. Liquid fire gushing over the crowds on the beach beneath the trestle snuffed out the lives of at least 17 persons and left nearly a hundred more seriously burned.

At Marshfield, Wis., late in July, four men were burned seriously and a large building demolished when fumes from a propane truck exploded as they tried to close a leaking valve. And the little town of Tuscola, Ill., escaped a major disaster on August 1 solely because of the heroism of one man who scrambled atop a burning railroad tank car containing 10,000 gallons of propane and pried open its emergency cover so accumulating fumes could be released before they exploded.

Admittedly, there are hundreds of other cases in which propane and butane are being used day in and day out without accident. Bulk handling of dangerous industrial chemicals is being accomplished safely every day under stringent precautions. But the hazard is always there. Each company concerned must weigh the risks against the cost and reach its own decisions as to the proper course of action.

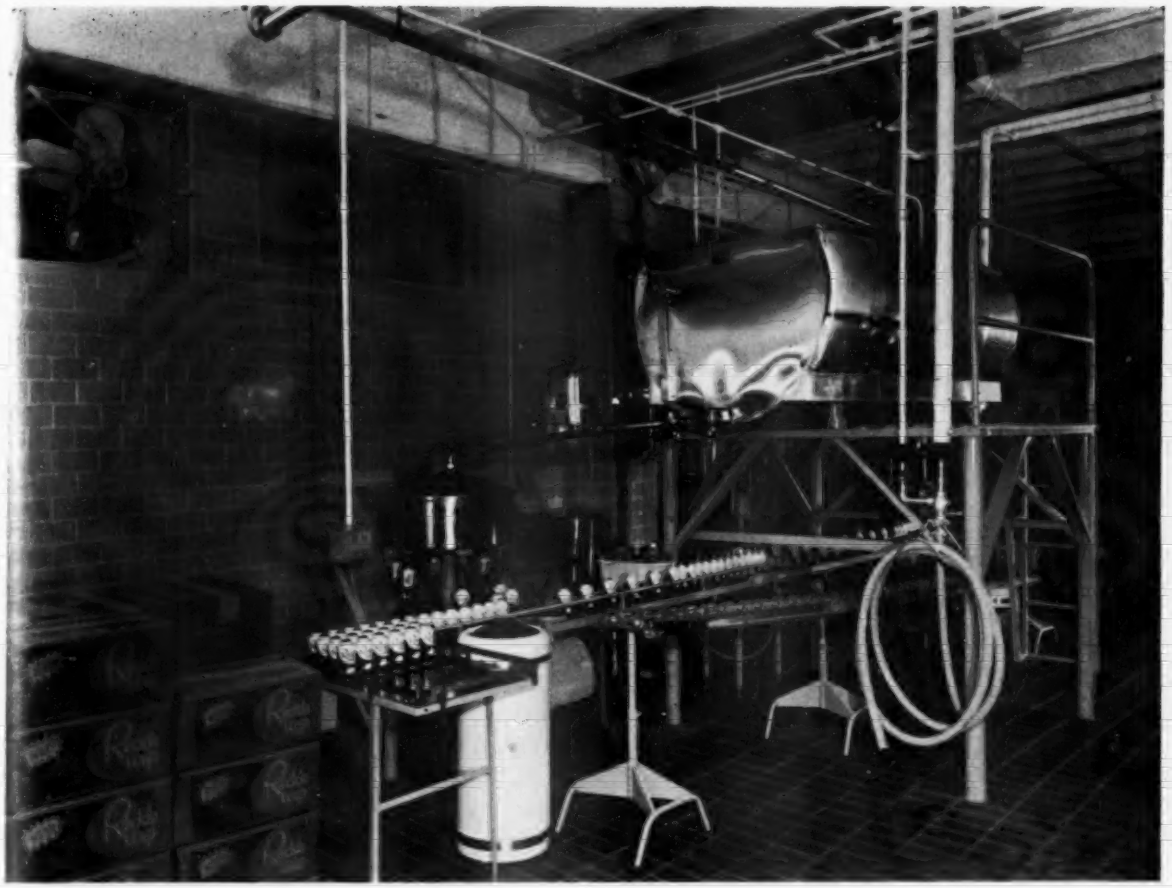
Aside from these considerations at the loader level is the question of safety at the consumer level.

It is the Du Pont Company's conviction, from its marketing experience not only with fluorinated hydrocarbons but with all types of chemical products, that the public in general is convinced that a safe product is a better product and that, in turn, a safe product is worth a premium price. For example, such a well established product as carbon tetrachloride, once commonly used as a household cleaner and as a fire extinguishing agent, now is being displaced in the market by more expensive but safe substitutes.

It is this public demand for safety which must be evaluated carefully. We believe the continued success of the aerosol industry, in terms of general consumer acceptance, depends upon maintaining its excellent safety record. It is not sufficient to have products which are safe if properly used. Every effort must be made to maintain products which are safe under the widest variety of consumer abuses.

Technically, any aerosol container which can be made to discharge a flammable mixture at any stage in its use involves certain hazards. By definition, a flammable mixture is one which when mixed with the proper amount of air will burn. Flammable mixtures vary widely in their degree of flam na-

(*Continued on Page* 130)



Typical Reddi-Wip processing line can turn out 12,000 cans per day. After the mix is pasteurized and cooled in another room; it is pumped to the cold wall storage tank above the track. It then runs by gravity to the filler, is conveyed to the valve applicator, crimped and gassed, and then capped and boxed.

Quality Control *at Reddi-Wip*

By Dr. Harry Pyenson

Director of Research
Reddi-Wip Inc. and Affiliated Companies
Los Angeles, California

WHIPPED CREAM in single pressure containers, a product pioneered by Reddi-Wip, Inc., has been on the market for about 11 years. Consumer acceptance was such that millions of cans were sold the first year. The popularity of this food aerosol is due mainly to the convenience of dispensing a whipped cream which previously had to be whipped, often with poor results.

In whipped cream, one is dealing with a highly perishable dairy product and the utmost precautions are needed to give the product satisfactory shelf-life. Other food aerosols, when marketed, may not need as severe a quality control program as does whipped cream. For long shelf-life, however, a definite quality control program must be set up and closely adhered to. One can not rely on high sugar content, low pH, and lack of oxygen for elimination of physical, chemical, and bacteriological defects. Food aerosols must depend completely on an effective quality control program for success, once an acceptable product is developed.

The advent of whipped cream in aerosol form created new quality control problems since a longer shelf-life was needed than was necessary with manually whipped cream. Pressurized whipped cream is produced with a shelf-life of 6-8 weeks. Thus, it was necessary to institute a carefully planned quality control program related to the packaging components, raw ingredients, processing, storage, handling in the stores and by the consumers; and a consumer education program on proper method of dispensing.

"Reddi-Wip" brand whipped cream,

Joe Keepers, 11 year veteran employee of Reddi-Wip, is a quality control supervisor who often averages 60,000 miles each year in the "control lab" station wagon.

a 30% butterfat product, and "Top-Wip" brand light whipped cream, an 18% butterfat product having one third less calories than "Reddi-Wip," are produced in 32 plants in the United States and Canada under a strict sanitary code set up by the Reddi-Wip Quality Control Research and Development Laboratory in Los Angeles. This laboratory, in cooperation with can and valve manufacturers, has developed better linings, new and improved lithographing techniques, improved dispensing valves and cover caps. Latest developments include a nozzle that dispenses slowly even when pushed far over, and a non-breakable lock tab cover cap that releases itself from the can top when the tab is broken. The latter eliminates the possibility of the housewife accidently releasing the gas while the cover is taken off.

Ingredients for Reddi-Wip and Top-Wip

"Reddi-Wip" brand and "Top-Wip" brand (for the calorie conscious) products are made from sweet cream, added non fat milk solids (such as non-fat dry milk or condensed skim milk), sugar, stabilizer and flavoring. The highest quality grade A sweet cream is used in these products. The source of supply of the cream, condensed skim milk or milk is inspected by Reddi-Wip inspectors at the dairies to see whether the quality complies with the standards set up by Reddi-Wip Inc. and Top-Wip Inc. The laboratory insists that the acidity be at a minimum; 40% cream must have acidity of less than 0.12%. The stabilizer-flavoring, a private formula developed in Reddi-Wip's research laboratory, undergoes continuous improvement to incorporate the latest knowledge of stabilization and emulsification. The vanilla flavoring has been incorporated in the stabilizer in powder form so that uniformity in body, texture, and flavor can be maintained wherever "Reddi-Wip" and "Top-Wip" are made.

Processing

The pasteurization, homogenization and cooling of the Reddi-Wip brand and Top-Wip brand products are performed with standard milk processing equipment. The cold mix next goes to the filler. Most of the processing plants either have piston type fillers, or are contemplating buying a filler of this type. With a piston type filler, it is easy to change the filler from one size fill of can to another.

From the filling unit, the cans travel by conveyor to the automatic valve applicator and then to the rotary crimper, where the valve is sealed into the can opening. As the cans move along the conveyor, they are automatically bottom coded, another quality control effort which allows the retailer to check the date that his stock was put on the shelves and to clear his store of any cans that have gone beyond their self-life. Also the coding method permits easy checking of lot numbers in case of a faulty assembly.

The cans then go to the straight line or rotary gasser-shakers for charging with the proper amount of whipping gas. The covers or overcaps are then placed on the cans and they are cased, usually 24 to a case. The line speed of this operation ranges from 35 to 110 per minute, depending on the size of the line. Standard dairy procedures for sanitation are rapidly maintained on the food aerosol assembly line. Recirculation of acid for in-place cleaning lines is done; also steam and hot water is utilized for sterilization, and chlorine plus other cleaning compounds are liberally used. Temperature control is an important factor at the time of gassing, since a temperature under 40° F. must be maintained through this operation. Pressure checks on filled cans are frequently made to insure that enough gas is present for proper overrun and dispensing.

Gases used in the "Reddi-Wip" and "Top-Wip" products are either 100% nitrous oxide, or a combination of 85% nitrous oxide and 15% carbon dioxide. A new gas mixture, 85% nitrous oxide and 15% "C318 Freon" will be used as soon as it is approved and available.

Since aerosol products are still relatively new, there has been a lack of

Dr. Harry Pyenson

automation in this industry, especially for food aerosols. Available only recently (or in the near future) will be new or improved can washers and sterilizers, piston fillers, rotary crimpers, valve applicators, rotary-gasser-shakers, pressure testers, can collar applicators, automatic cover applicators, and automatic casers. Automation is needed in this industry to keep costs at a minimum. The above mentioned equipment will help to reduce processing and packaging costs.

A typical processing line for these pressure packed whipped cream products is shown in photo 1. This operation processes about 12,000 cans of product a day. The mix is pasteurized and cooled in a separate room and then pumped to the cold wall storage tank above the track. From there it

(*Continued on Page* 131)

A newly-designed uncoated glass aerosol container has been introduced by Narva Products Corp., 201 Verona Ave., Newark, N. J. Having a capacity of one and a half ounces, it will reportedly withstand 125 psi internal pressure.

CRC. Moisture Inhibitor is a new product of Corrosion Reaction Consultants, Inc., Philadelphia. Packaged in a 12-ounce can, it is said to drive out absorbed moisture in electrical equipment and act as a protectant against future moisture damage or wear.

Tun-O-Lube is a product of Chemtronics, Brooklyn, N.Y. for dispensing small amounts of cleaning solution directly into television tuners and other electronic components with movable contacts. Special extender on valve was developed by Anchor Plastics, Inc., Long Island City, N.Y. dip tube manufacturer.

DGF 123 is a pressurized dry lubricant introduced last month by Miracle Power Products Corp., Cleveland for use by linotype operators and others in the printing industry to lubricate space bands and other printing equipment.

NEW PRODUCTS AND PACKAGES

Prince Matchabelli's **Stradivari** and **Wind Song** have been introduced in metered aerosol packages by Risdon Manufacturing Co. Package, filled by Aero-Chem Fillers, Inc., has a removable glass inner container (by Wheaton), with outer container, valve, and actuator by Risdon.

Pertussin, a "medicated vaporizer", has been introduced by Chesebrough-Pond's, New York, in an aerosol container retailing at $1.19. It reportedly acts like a conventional vaporizer by relieving throat congestion, nasal stuffiness, and coughs due to colds.

Slikote is an aerosol product introduced by Speco, Inc., Cleveland, which reports it will prevent snow from sticking to shovels and other snow removal equipment. It is now packaged in a 16-ounce aerosol can.

Neutro-stat is a new antistatic aerosol spray in a 16-ounce container retailing for $2.75. The Simco Co., Lansdale, Pa., is the marketer of the product, which is "guaranteed to neutralize and prevent the formation of static charges without fouling the machine with oil".

Equipment Leasing

for the aerosol industry . . . II

a further discussion of "case histories" in the industry

FOUR months ago a leading manufacturer of aerosol packaging equipment made headlines in the industry by offering to rent essential aerosol laboratory equipment for as little as $55 per month. What made the offer especially attractive was the provision that the rent paid could "*at any time*" be applied toward the purchase of the equipment.

Two months later (August *Aerosol Age*, page 44) a full length feature article described the operation of a large leasing company, serving several industries. This month *Aerosol Age* went into the field to learn the facts about aerosol leasing first hand.

Contrary to what might be normally expected, it is not only the small companies with limited funds who are renting instead of buying. Take the case of a West Coast pharmaceutical company (a division of a large eastern corporation) which rented a $335 bottle crimper from Mojonnier Associates (now Kartridg-Pak Co.) for the modest sum of $35 per month. After two months, Kartridg-Pak received a letter requesting that the rent already paid be applied against the purchase price and an invoice forwarded for the difference.

Only later did Kartridg-Pak learn the reason behind the request: the company already had an aerosol line, and the quality control manager wanted his own laboratory model crimper for checking purposes. However under company regulations he could himself only approve expenditures up to $300. So he merely paid rent for two months to reduce the price to one he could approve!

Sometimes the leasor hopes for a tax advantage. Not long ago a well established contract packager in Pennsylvania rented a complete aerosol line valued about $30,000. No newcomers to aerosol packaging, the company had built its first line nearly ten years ago. This time, however, a completely engineered, factory-built line was wanted. Under terms arranged with the manufacturer (Kartridg-Pak) the packager took the new line on a straight lease, with option to renew or purchase at the end of three years. The company's decision at that time will doubtless be affected by how fast a write-off will be allowed after the line is three years old.

Sometimes, it is not a shortage of capital that prompts a purchaser to rent, but rather a general reluctance toward making *any* capital expenditures that can be avoided. A Canadian packager with two aerosol lines has acquired both of them via lease-purchase agreements.

This company was already well established in other packaging fields when it entered into aerosol packaging with its first line, a Mojonnier pressure-fill unit, five years ago. When the lease was up, the line was purchased for the small balance remaining. Shortly thereafter the company leased a cold-filling line, also from Kartridg-Pak.

Management of this Canadian firm credits the lease-purchase program for putting them into the aerosol business, since at the beginning they were hesitant to sink a large sum into a new field. Also they felt that a single lease agreement with *one* manufacturer would link them more closely should service problems arise, than if they either bought or rented from different manufacturers.

Perhaps the leasor in the strongest financial position (and who least needed to rent instead of buy) is one large Midwest packager who had been nearly 50 years in business before getting into aerosols. The aerosol was really no gamble, since this company had been sub-contracting aerosol packaging for years. They recently concluded a three-year lease-purchase agreement with Kartridg-Pak for a pressure-filling line worth about $20,000. It is interesting to note that they at first considered a conditional sales contract and then switched to a straight lease (with renewal or purchase option), presumably upon good financial/legal advice.

Most of those interested in a rental program on aerosol laboratory equipment have been fairly sizeable companies. The program however also attracted one enterprising individual with humorously short-range intentions.

The latter was a rather small cosmetic manufacturer in New England who has specialized in purse-size containers. In concluding his month-by-month lease for a bottle crimper, he specified that it be delivered "in time for Christmas production." If the crimper comes back after the Christmas cream has been taken off the perfume business, Kartridg-Pak will not be too surprised.

However, like Montgomery Ward, which knew some catalog customers were taking advantage of its open policy on returns, Kartridg-Pak does not seem overly concerned. Its management seems such that the aerosol is too good not to attract permanently the majority of packagers and marketers who try it even temporarily. And, the fact that it is a subsidiary of Oscar Mayer & Co., makes it unlikely that

(*Continued on Page* 130)

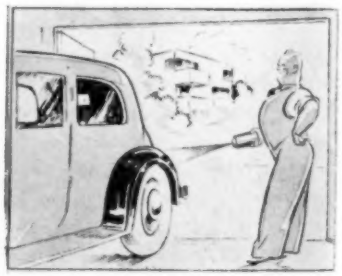
First Aerosol Booklet Showed Ease of Using New Package in Cartoon Style

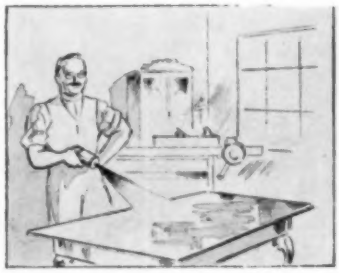
Way back in the 1930's, before aerosols were known in the U. S., the Norwegian firm founded by Eric Rotheim and Frode Mortenson put out a promotional booklet on aerosols. The cartoon characters showed how easy using an aerosol is compared to the mess involved with normal painting operations.

the menace of the tipped-over paint can

the mess with brushes and buckets

a new way to touch up the old car





painting a table in minutes

Standardization in the Aerosol Industry*

By Dieter Tangermann
J. A. Schmalbach Beckwarenwerke AG
Braunschweig, Germany

WHEN a water supply was installed in ancient Rome more than 2,000 years ago, pipes of accurately determined diameters were prescribed for connection to the houses. The use of pipe sections, other than the standard ones, was prohibited.

It is perhaps surprising to learn that definite standards were established that long ago, but we can see from this that the ancient Romans had already realized the far-reaching significance of standardization, and were able to make good use of the technical advantages of standardized manufacture and simplified installation. As may be imagined, this standardization simplified technical and administrative matters, since the width of the pipe provided a simple and practical basis for calculation of charges.

Today, standards have achieved such wide importance in manufacture and sales that it is strange that greater use is not made of them in the fields of economy and industry. For instance, in the aerosol industry we are confronted with a literal chaos of technical standards! This may be due to the fact that conditions within the aerosol industry are more unfavorable to standardization than were, for instance, the problems of water supply in ancient Rome. There was then a single product, a single supplier, and customers with the same basic interests living in close confines. All of the prerequisites for ideal standardization existed, and compliance was insured by State Rule!

Conditions in the aerosol industry are obviously entirely different. A wide variety of products is offered, with new ones being added continually. The circle of suppliers is widespread and is ever increasing. Between the various companies there is lively competition, and customers have widely varied interests and desires. Regulations for standardization cannot be expected to be achieved over such a wide range. Moreover, the basis for setting up and maintaining standards is completely dependent on the good will of those concerned, and it presupposes a high degree of community sense.

Though the basis for effective

Advantages of Standardization—Figure I

General:
a) Clarification.
b) Order.
c) Economy.

In detail:

I. For the manufacturer.		
Operation	simplified	by reduction of type numbers
Expenditure	reduced	by more economic working
Efficiency	increased	by more economical means
Manufacturing expenditure.	reduced	by simplified stock of tools
Rate of production.	more uniform	by steadying seasonal and trade influences
Capital gain.	increased	by accelerated output
Consumption of raw material.	reduced	by more efficient use of material shapes
II. For the trader.		
Competition more regulated by equal conditions of supply		
Trade influence more uniform by more economic stock keeping		
Store-keeping	simplified	by introduction of type numbers
Dealing with consumer	facilitated	by simplified understanding
III. For the final consumer.		
Selection	facilitated	by well-proven choice
Deception	restricted	by clear classification and marking
Overcharging	restricted	by standardized supply specifications
Price	reduced	by lower manufacturing costs

* Presented at the first meeting of the European Federation of Aerosol Associations, Paris, France, on June 26, 1959.

standardization in the aerosol industry *is* so narrow, a major attempt should be made while the industry is young. Such a beginning will doubtless entail difficulties in many quarters, but at the same time it will result in considerable advantages that will make it well worth while. Figure I lists some of the most important aspects of this problem.

In general terms this chart shows the wide range of problems associated with this subject. If treated exhaustively, the possibilities of standardization in each of the following fields would have to be discussed in detail:

a. the contents
b. the packaging
c. the equipment

Because of space limitations, this cannot be done within the framework of this article, and a number of points will have to be confined to a specific survey. However, a few special points will be discussed in detail below, though an attempt will be made to present positive suggestions for standardization at a practical level.

Standardization of Packaging

The consumer is currently offered a very wide range of containers. There are different kinds of packages, a wide variety of sizes, and a multitude of dimensions and shapes. The main aim of standardization here is to simplify the market (to a certain extent) by limiting the large assortment to a few types which could be economically produced and filled. This would simplify stock-keeping and trading and limit "profiteering" so that the consumer could be provided with the most suitable package under the most favorable conditions of sale.

At the moment there are offered four basically different container types (which differ mainly in the material from which each is made). The original tin-plate containers have been supplemented by aluminum, coated and uncoated glass, and plastic. Each has found a certain field of application best suited to the properties of the material. But due to the numerous requirements resulting from the characteristics of the materials when they are filled, and the demands of the consumer, the applications of the various package types overlap to a very great extent. It is, however, hardly to be expected that this can be limited by voluntary agreement and the idea of simplifying the market by limiting the applications of certain package types therefore does not offer a practical possibility at the moment.

Though aerosol containers are supplied in numerous sizes, a systematic grading of the actual contents has never been attempted. The differences between adjacent sizes are so minute that no practical importance can be attached to them. This great variety of package sizes makes the market difficult and confuses the consumer. Reasonable standardization here would result in advantages to manufacturer, dealer, and consumer.

In recognition of this need, the proposition has been made that a series of standards should be established for the four aerosol package

FIGURE II

Capacity of some US Aerosol Dispensers.

Contents according to method

Trade designation	I calculated volume (to bottom of dispenser)	II calculated volume (to top of dispenser)	III Volume of closed tin determined by filling completely with water without valve.		
	(fl.oz)	(fl.oz)	A (fl.oz.)	B (Cu.In.)	C (Av.Oz.)
3 oz	4.6	4.8	5.2	9.3	5.4
6 oz	6.4	6.6	7.0	12.6	7.3
12 oz	12.6	12.9	14.1	25.5	14.7
16 oz	16.8	17.1	18.3	33.0	19.0

a. No clear correlation between trade designation and volume of container.

b. Three different definitions for the volume methods I, II, III.

c. Three different units of measurement, two by volume, one by weight.

fl. oz = fluid ounce = 29.57 cm^3

Cu. in = Cubic inch = 16.39 cm^3

Av. oz = avoirdupois = 28.35 gr.

Rice Weevil

Buffalo Gnat

Fruit Fly

Silverfish

Angoumois Grain Moth

Stable Fly

Drugstore Beetle

Mediterranean Flour Moth

Polistes Wasp

Spider Beetle

Housefly

Cigarette Beetle

Dark Meal Worm

Little Black Ant

Cheese Skipper

Cadelle

Rust-Red Flour Beetle

Scorpion

Flour Beetle

Clover Mite

Mosquito

Bald-Faced Hornet

Saw-Toothed Grain Beetle

German Cockroach

Housefly

American Cockroach

Oriental Cockroach

Granary Weevil

Chocolate Moth

Grain Mite

Troublemakers All...

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Stops Them Dead

Troublemaking insects... no matter how tough, resistant or otherwise... all are effectively controlled by insecticides that contain Pyrenone concentrate, the versatile, fast-acting insecticide base. A combination of piperonyl butoxide and pyrethrins, Pyrenone assures rapid knockdown and kill, gives positive control where others fail.

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Fairfield Chemicals

Sales Headquarters

441 LEXINGTON AVENUE, NEW YORK 17, N. Y.

Branches in principal cities. In Canada: Natural Products Corporation, Montreal and Toronto.

types. It would be desirable if these standards were accepted on as wide an international basis as possible, so that the utmost advantage could be realized, not only in the individual countries, but also in international trade. For instance, one approach might be to simplify aerosol packaging within the European Common Market, as has already been done successfully with tinned food.

Experience has shown that the practical application of such fixing of types is facilitated by staying close to existing sizes. This is understandable, since any change cause confusion and expense. Therefore, if possible an endeavor should be made to base this new series of types on the most important aerosol container sizes already on the consumer market. But even in determining the existing package sizes in the various countries, one encounters disagreement, stemming from hitherto differing specifications. To enlarge on this point, Figure II lists data on the contents of several sizes of American containers. In addition to the usual trademark (left column) further columns list the values which are used in stating the contents for the respective size of the dispenser. In studying these specifications it becomes obvious that:

(a) there is no clear correlation between the usual trade designation and the contents stated on the dispensers.

(b) three different definitions for the volume are used, because the package must naturally be fitted with a valve and perhaps with a small immersion tube.

Before standards for the dimensions of aerosol containers can be established, it is necessary to determine exactly:

1. The definition of the capacity of the container.
2. The unit of measurement to be applied.
3. Suitable designation of the various sizes.

Though this discussion may seem keyed to an almost primitive level (technically), a look at Figure II reveals the necessity for clarifying such basic matters. One possible ground for controversy, for example, is the question of whether the capacity should be determined with the valve and dip tube fitted, or without the valve. Agreement on this basic point is of utmost importance in determination of the capacity standard for aerosol dispensers.

With a view toward making some progress toward a solution of this, the following method for determining the capacity of aerosol dispensers is recommended for international use:

1. The container should be manufactured in the normal manner with the complete valve including dip tube. Two holes of 3 to 4 mm diameter (approximately 1/8") and at a distance of 5 mm (approximately 1/4") from each other should first be drilled in the top of the container, if possible at the highest point from inside to outside.

2. The entire container, including the fitted valve should be weighed whilst empty to an accuracy of one gram.

3. The container should then be filled through one of the holes with a narrow jet of water at 20° C. holding the container slightly inclined so that the holes are situated as high as possible. As soon as the water comes out of the second hole, the holes are covered with the fingers, the container is slightly shaken and filled completely. Any excess water from the outside of the package is removed with blotting paper.

4 The filled container should then be weighed again.

5. The difference between the two results plus 0.28% represents the capacity of the container in millilitres (cc).*

One initial point that must be agreed upon is whether the principle that the capacity VR should be from the difference of the weights of an aerosol container when empty and when completely filled with water is a valid one.

As will be observed in Figure II, the capacity of aerosol dispensers in the U. S. is given both in volume units and in weight units. The measurement of capacity in weight units is in itself a contradiction. In com-

* The density correction of 0.28 ml. for each 100 ml. of capacity, is primarily based on the temperature of the water weighed with the container, but it also takes into consideration the air buoyancy of the container and its weight in air. In this case it is assumed that the specific gravity of a container filled with water is unity and that brass weights are used: slight deviations from these conditions are however possible without greatly affecting the accuracy.

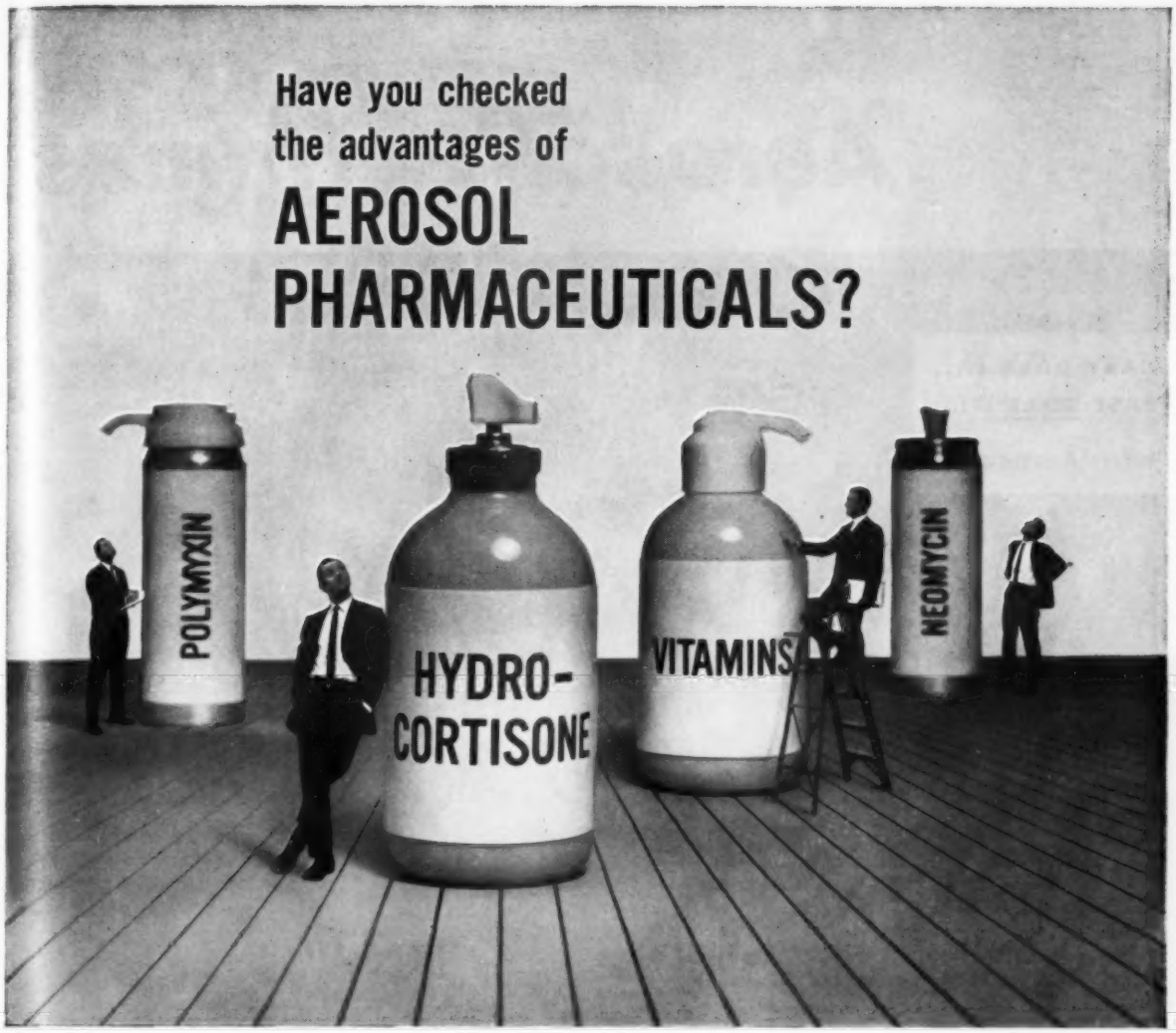
FIGURE III. **STANDARDISATION OF AEROSOL DISPENSERS.**

Standard sizes.

2nd Proposal.

Proposed trade designation.	Volume V_R		Volume V_F 60		Volume Value of existing packages			
	Maximum value c.c.	Tolerance % approx.	Minimum value c.c.	Filling 1)	a	b	c	d
90	90	- 10	80	76		88.71		80
220	220	- 10	180	170	190 210	221	197 219	
400	400	- 10	360	350	385 394	381	403	
600	600	- 7	560	530	585 600	562		

Have you checked the advantages of AEROSOL PHARMACEUTICALS?



● The unique advantages of pressure packaging lend themselves to a number of pharmaceutical products and applications. For some time now Pfizer has been working in close cooperation with the pressure packaging industry to develop formulations where these advantages will be most profitable for pharmaceutical manufacturers.

For example, the stability of liquid multivitamins is greatly extended by pressure packaging because the preparations are overlayed by an inert gas, such as nitrogen, for the life of the container. Also, they are protected from the deleterious effects of light.

Another inherent advantage of pressure packaging is the complete freedom from atmospheric contamination afforded the contents of the package. Topical preparations utilizing Pfizer Hydrocortisone and the antibiotics—neomycin and polymyxin—as well as multivitamin preparations are particularly enhanced by this feature.

The Pfizer non-toxic plasticizers—Citroflex® A-2 and A-4 have proven highly effective for polyvinyl compounds used in pressure packed hair sprays and spray bandages.

Because of the firm conviction that pressure packaging will play an important role in the pharmaceutical industry, Pfizer is continuing to direct considerable effort towards the development of antibiotic, steroid and vitamin aerosol formulations. For a report concerning the role pressure packaging is playing, and will play, in the pharmaceutical industry write to Pfizer requesting reprints of the article, "Pressure-Packed Pharmaceuticals."

Among the many other advantages of pressure packed pharmaceuticals are:

- Application is fast, convenient, uniform.
- A high concentration of a drug over a limited area may be obtained.
- Direct contact with the injured area is eliminated, often reducing pain.
- No waste through intermediate applicator.
- Dosage may be controlled accurately with metered valves.

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Reason: the magic touch of aerosol packaging makes perfumes and colognes easier to apply... eliminates loss from evaporation, spillage, leakage and breakage.

Aerosol perfumes and colognes are moving fast! Last year, sales shot up to 28 million units—a 518% increase over the 5.4 million units sold as recently as 1955.* And the trend has just begun. The push-button convenience of modern pressure packaged perfumes and colognes . . . the elimination of loss from evaporation, spillage, and breakage . . . have proved tremendous sales advantages. An aerosol perfume won't leak. Every woman can now *safely* carry perfume in her purse . . . have it with her wherever she goes.

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As one of America's leading producers of aerosol propellants, General Chemical can give you valuable technical information which will help you determine the proper aerosol propellant compatible with your perfume or cologne. We will supply you with the latest aerosol market information. We can show you promising new types of aerosol formulations developed in our laboratories. And we can give you information on how contract fillers can help you, from test marketing right through to full commercial production. The fact is, through the use of contract fillers you can get into aerosols quickly and efficiently—*without any outlay on your part for plant, special equipment or personnel!*

Why not take advantage of these valuable services from General Chemical *now*? Call or write us today for a confidential discussion of your requirements.

*Estimated by Market Surveys Department, General Chemical Division, Allied Chemical Corporation

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GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

piling a standard for aerosol dispensers, it would be appropriate to use only the measure of volume. Discussion of which unit of measure could be used can, in my opinion, be dispensed with since for international usage units of the CGS System (cm, g, sec) should be used exclusively.

So far it has been usual to designate the size of aerosol dispensers in ounces — as is done in American usage. If it is finally decided to state the volume in ccs, it seems of little use to designate the size in ounces. The adoption of the American ounce designation is also inappropriate insofar as there is no definite relation in these data to the actual volume of the containers (Figure II).

As we shall see later, the permissible maximum value of the capacity is of vital importance for the use of an aerosol dispenser. My proposal would be to use this value for the designation of the size of the container.

In determining aerosol container sizes, two matters must be considered:

1. Official regulations which stipulate certain maximum values and
2. The tolerance which would have to be allowed in the manufacture and filling of aerosol containers.

For instance, the regulations which apply in Germany result in the following classifications, which must be considered when setting up a standard series for the capacity of aerosol containers:

220 cc
400 cc
600 cc

Since absolutely accurate manufacture is impossible, the values given in the classification cannot be accurately maintained in the containers. Even in the manufacture of the same container by the same process, certain differences in capacity result from unavoidable divergencies in manufacture. However, these differences are usually within relatively narrow tolerances, and the major differences here are between various container types, since different manufacturing methods and varying shapes have a considerable effect on accuracy.

In addition to size graduation, a standard must therefore determine the tolerance ranges for the various volumes. These tolerance limits must be chosen in the following manner:

(a) the actual volumes resulting from varying manufacturing methods must be kept within the tolerance limits, and

(b) containers, the volumes of which vary within the determined tolerance range, can still be designated as equal for the usual trade purposes.

If, as proposed above, the designation of the packaging sizes is accepted as the maximum value of the volume, then the volume tolerance must be determined as a unilateral minus tolerance.

As already stated, the determination of the series of sizes and the tolerance ranges should be arranged in such a manner that if possible at least some of the existing sizes are maintained. Such a procedure favors a basic readiness to accept a new standard and would facilitate its introduction. If in the series of standards new sizes *only* were standardized, there would be the hazard that the new sizes would be used only to a limited extent and only as additional sizes, whereas the old ones would be maintained as before. This would only increase the chaos.

In any case, it must be realized that the introduction of standardization is not possible from today to tomorrow, but that a considerable period is required before the standard sizes are adopted as the only ones.

Because of the different types in various countries and the fact that demand is frequently influenced by existing habits, it is no simple matter to compile a type series.

These special demands might have a certain justification but they can be taken into consideration only if they can be incorporated into the framework proposed for the standard. In principle, special requirements cannot be accommodated in an international standard. At this juncture, I should warn against possible obstruction of our endeavors for international standardization through non-essential special requests from sales and advertising departments.

We have just discussed in detail the advantages of standardization (provided it *can* be achieved) in arriving at suitable limitations and in carrying them out in practice. The great variation, clamored for again and again for advertising purposes, should not be obtained by extending this type series. There are sufficient other possibilities of effective differentation (for instance, by appropriate printing on sheet metal tins), which would not affect the clear specifications and simplified operation aimed at by the standard.

The compilation of a type series for the sizes of aerosol dispensers may require some patience. It should be pointed out, however, that similar procedures already have been successfully adopted in other fields; namely, for food tins. This task was taken up a few years ago by Technical Commission 52 of the 150 which was at first confronted by a welter of varying sizes and very different requirements. What was at the time regarded as a possibility by only a few optimists, has been translated into reality.

For a time now there has existed an internationally recognized series of food tin sizes, and in the European Common Market countries these will be adopted for fruit and vegetable tins during the coming 12 months. It has been agreed to designate these packages as equal in commercial practice if the capacity is maintained within the following tolerances:

for tins of more than 200 cc
volume $\pm$ 5%
for tins of more than 22 cc
volume + 3%

With tolerances of similar value useful results can also be achieved with aerosol containers. Figure III contains a first proposal for a standard series for aerosol dispenser sizes. In compiling the values, the above mentioned data have, so far as possible, been taken into consideration.

(*Continued on Page* 125)

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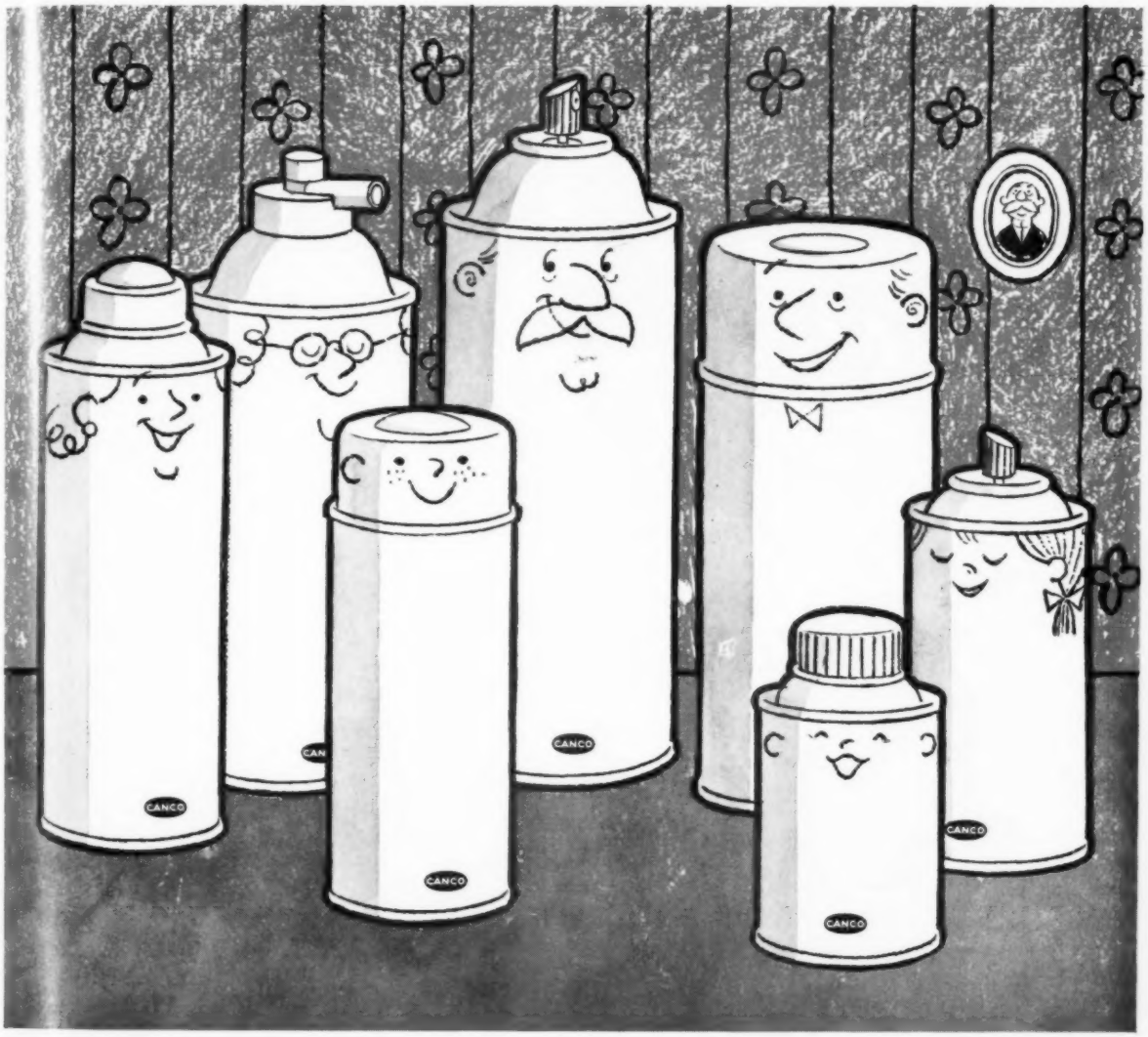

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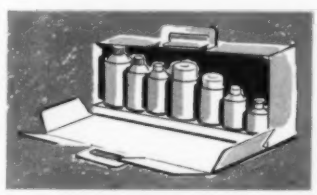
Canco manufactures seven sizes with standard one-inch cup opening or individually styled one-piece tops. Canco also offers an end-use warranty on these containers.

And remember—Canco's famous package design staff is at your service to create new sales appeal for your product with compelling color lithography.

Discover for yourself why so many successful aerosol packers depend on Canco. Call your Canco salesman!

A SAMPLE KIT containing all seven Canco pressure cans is yours free. It's available through your Canco salesman only. Ask him for yours, today!



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Aerosol Clinics Set for Chicago and New York

The Aerosol Division of the Chemical Specialties Manufacturers Association has announced final program details for its two one-day aerosol educational technical clinics, scheduled for October. The first of the clinics will be held Saturday, Oct. 17 at the Hotel McAlpin, New York; the second Oct. 24 at the La Salle Hotel, Chicago. Each will run from 9 a.m. to 5 p.m., and will include basic and up-to-date technical information intended for junior level management and technicians.

Speakers slated to address both the New York and Chicago clinics are Dr. Frank Mina (Lodes Aerosol Consultants), *Aerosol Principles;* Ralph A. Crane (DuPont) *History and Marketing;* Lloyd Flanner (General Chemical *Propellants;* Walter A. Beard, Jr. (Risdon) *Valves;* J. J. Buchanan (Continental Can Co.) *Containers;* and D. C. Geary (Union Carbide) *Laboratory Equipment.*

A highlight of each program will be panels on formulation problems and commercial filling methods featuring speakers from companies in the East and Midwest. The panel on formulation at the New York meeting will include: Phil Prussak (Associated Brands), D. H. Terry (Boyle-Midway), Fred Presant (Aerosol Techniques), and Milton Fowks (Powr-Pak). Speaking on commercial filling methods will be Anthony Iannacone (Fluid Chemical) A. Osman (Thomasson of Pa.) R. T. Ferry (Kartridg-Pak Machine) and John Hart (Stalfort Pressure-Pak.)

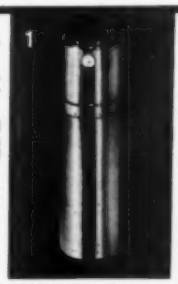
For the Chicago program the formulation panel will consist of Montfort Johnsen (Peterson Filling), S. J. Campbell (Continental Filling), David Tillotson (Pennsalt Chemical), and R. L. Rhodes (Cook Chemical). The commercial filling method panel will include C. F. Kessler (Plasti-Kote) and R. G. Appenzeller (G. Barr).

Walter A. Beard, Jr.
Aerosol Valves

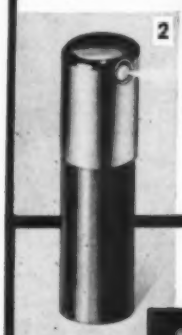
John J. Buchanan
Aerosol Containers

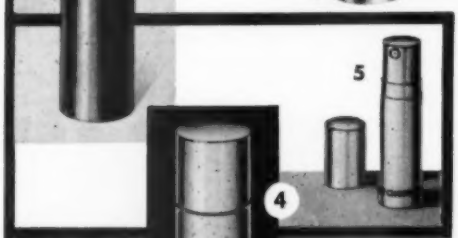
Dr. Frank Mina
Aerosol Principles

1. Metal Fabrication, 10cc purse spray case.
2. 16cc Peerless Tube. VCA MIST TOP, metered valve.
3. Bridgeport Metal Goods 3 pc. case. VCA 10cc stainless steel tube. metered valve.
4. Flaconette. 1 oz. encased bottle, metered spray.



5. Risdon MINI-MIST 10cc stainless steel cylinder, metered valve and 3 pc. polished brass case.





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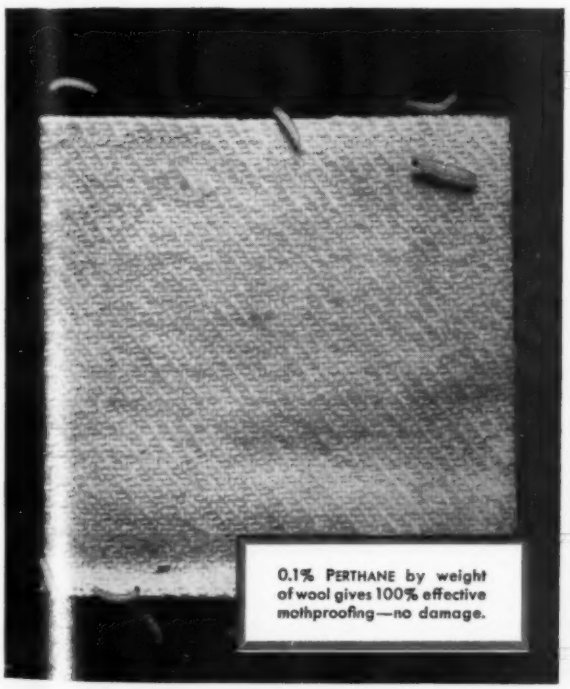

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AEROSOLS in review

In this column important aerosol subjects appearing in other periodicals (both domestic and foreign) will be reviewed and summarized. It is felt that this service will enable the reader to keep abreast of most of the significant contemporary articles on the industry, even though they may appear in other periodicals. Since there is a chance that some pertinent articles may be overlooked, it will be helpful if readers will call our attention to any they judge important enough to review.—*The Editor.*

Aerosols Said to Stimulate Sales of Atomizers

NEW versions of the conventional perfume atomizer may constitute an increasing challenge to aerosol perfume and cologne packages, declares the September 7 issue of *American Druggist*. Revealing that perfume atomizer sales shot up 167% in 1958, the magazine points out that aerosol package sales have apparently helped build consumer acceptance of the idea of applying atomizer-dispensed cosmetics.

"It is pointed out (by spokesmen for the leading atomizer manufacturers) that, with respect to personal preparations like fragrances, there is a tendency toward consumer preference for atomizers, rather than pressure containers—because atomizers are refillable whereas most aerosol containers do not incorporate the re-use feature. Not only that, but there is a growing emphasis on the merchandising of higher priced fashion-styled glass and ceramic containers designed to appeal to fashion-conscious women as decorative additions to the boudoir dressing table — where the utilitarian-looking aerosol container might be considered out of place."

•

A GOOD practical discussion of aerosol deodorants and anti-perspirants is one of the features of the July-August issue of *The Givaudanian*, publication of Givaudan-Delawanna, Inc., New York. Pointing out that the spray container has been well received by both men and women, the article points out that it eliminates the problem of the aversion to applying a deodorant with the hands.

"Many of the currently popular personal deodorants are based on a bacteriostatic agent which effectively prevents the growth of bacteria on the body, thus virtually eliminating body odor. G-11 (Hexachlorophene U.S.P.), which can be used with a large variety of vehicles, is one of the most widely used bacteriostatic agents known today. A typical aerosol deodorant formulation would contain 0.20% G-11 dissolved in 12% anhydrous alcohol #40, 2% ethyl cellulose N-10, alcohol soluble, a small amount of isopropyl myristate (Detyl Extra) and, of course, a percentage of perfume oil. The aerosol can would be charged with 15% of this formulation and 85% of a combination of propellants 11 and 12.

"There are several different formulation approaches which can be taken in the preparation of aerosol deodorants. A combination deodorant anti-perspirant can be achieved by using an aluminum chlorhydroxide complex as an astringent. Care must be exercised in setting the concentration to be used due to the limited solubility of this constituent in the aerosol propellants. Other formulation variations can be made.

"The addition of a fragrance actually serves two distinctly different functions. Some of the basic ingredients used in formulating the aerosol deodorant and anti-perspirant products may have inherent unpleasant odors which the fragrance must be capable of masking. Secondly, and in our opinion of much greater importance, is the aesthetic role that the fragrance plays. The fragrance adds a new dimension to the sales appeal of the product and its acceptance by the consumer is an assurance of continued repeat sales. . ."

The article cautions about taking into consideration the pH level of the product, the odor characteristics of the individual ingredients, and corrosion problems when formulating the material for aerosol packaging. Compatibility of the formulation with the propellant or propellant mixture is a factor to be watched closely, the article cautions.

•

SHULTON'S new high-volume pressure-fill line at its Clifton, N. J. plant, is described in detail in the September issue of *Modern Packaging*. A rotary Alpha-Colton line was chosen, the article says, for the following reasons:

"1. It regularly, fills, closes, and pressurizes 120 cans per minute—nearly double the highest known speed for any single-line cold-fill operation.

"2. It takes up less space than previous cold-filling installations and costs about the same as a single cold-fill line capable of half the output.

"3. Reduces the need for attendants and thus achieves a sizable increase in output per manhour."

One important contribution to the speed of the line, the article declares, is "that the charge of propellant 12 has

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been minimized in the pressure filler by pre-mixing the propellant with the higher boiling point propellant 11 in the active product ingredients. Evaporation of the pre-mix propellant is retarded by a special manifold on the in-line filler that maintains a 7-pound pressure on the concentrated mix up to the time of the filling operation.

"No refrigeration is needed on the low-boiling propellant to keep it liquid before pressure filling. Instead, hydraulic air-actuated pumps boost the propellant to nearly 1000 psi. and force it into the filling heads. At each head, the gas fills an outer jacket, which surrounds a central cylinder containing the filling piston. Gas also flows into the central cylinder above and below the piston. The piston rises because of a differential in surface pressure created by the piston rod. There is an adjustable stop nut which governs how high the piston can rise and thus accurately controls the volume of propellant charge in the cylinder.

"When a can enters the rotary propellant pressure filler, the post-mounted pressure-filling head and adapter are lowered onto the can valve. This action controls an internal valve which opens the cylinder and closes off the outer jacket. The imbalance of pressure in the cylinder forces the volumetrically measured charge of propellant into the can."

•

THE aerosol will take an ever greater share of the packaging of older products, and will go in more and more for distinctive package shapes and designs. These predictions were made by Douglas Atlas, vice president of G. Barr & Co., Chicago custom filler, in an interview story in the Sept. 7 *Drug Trade News*. "Within five years, the multi-shaped aluminum aerosol will open a new prestige era for the drug industry, ranging from higher-priced cosmetics and colognes to dentrifices," he is quoted as saying.

Among the other predictions made by Mr. Atlas:

"Nylon containers will gain increasing acceptance for higher priced colognes and cosmetics.

"Smaller-sized dentrifices and shaving aerosols will be marketed for traveling purposes.

"More aesthetic and glamorous packages will emerge from design minded firms.

"Ethical and over-the-counter drug manufacturers will employ more custom-made applicators and metered valves for convenience medication.

"Aerosols will take a greater share of the packaging of new products.

"Mass production techniques will eventually lower the cost of toilet goods items and help them gain a firmer foothold in this field."

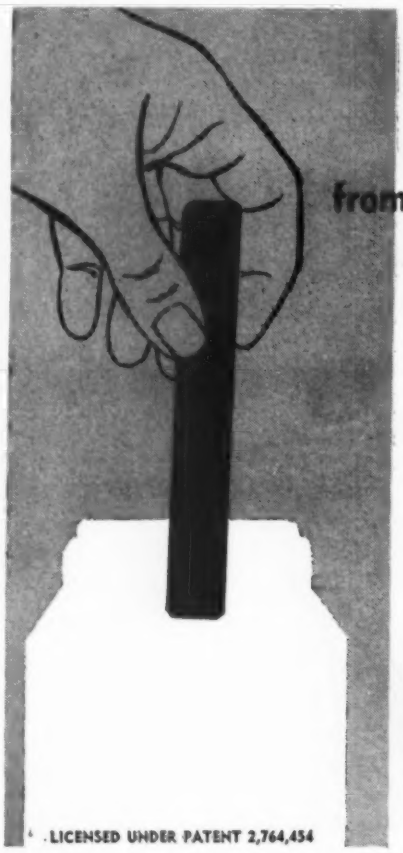
Mr. Atlas reported that G. Barr expects to double its 1959 figure of one million aerosol units filled per week by 1965.

•

International SCC Group

The International Federation of Societies of Cosmetic Chemists became a reality in Brussels on Sept. 8 with the election of Maison G. de Navarre of the Society of Cosmetic Chemists of the United States as its first president, and the appointment of a working committee consisting of Dr. R. H. Marriott of England, Dr. L. W. Masch of Germany and Mr. Kurt Pfeiffer of Switzerland. Eight countries were represented at a two-day meeting held Sept. 7-8 and the new federation will include the Societies of Belgium, Switzerland, Germany, England, France, Spain and the United States, whose representatives attended the meeting and also Denmark and Italy, who were not represented. Societies of other countries have already indicated an interest in the new Federation.

Sabbat J. Strianse, chairman of the International Affairs Committee, who also represented the American Society, reported that work was begun on a new constitution and that many of the points upon which there was disagreement are now being worked out.



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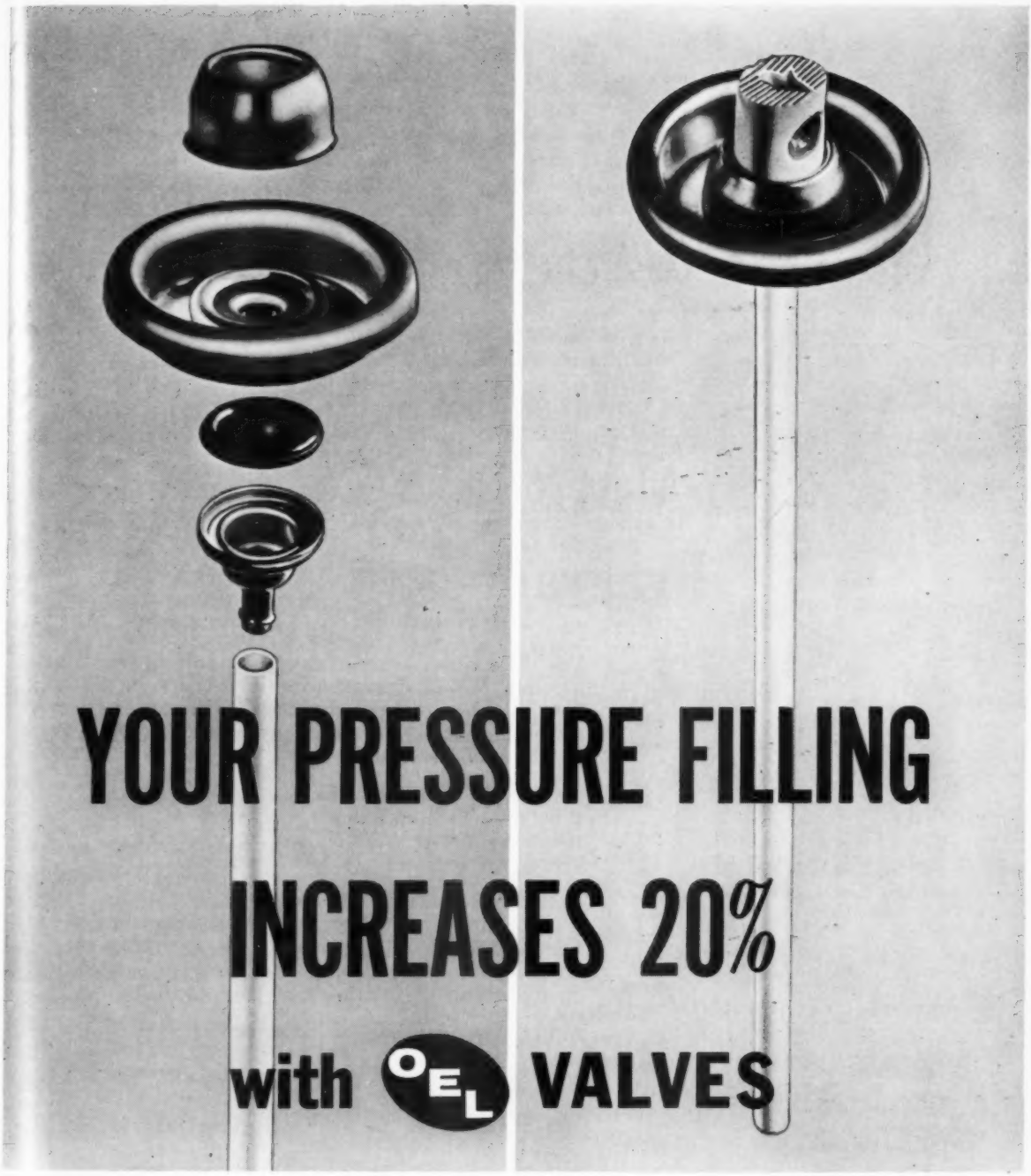

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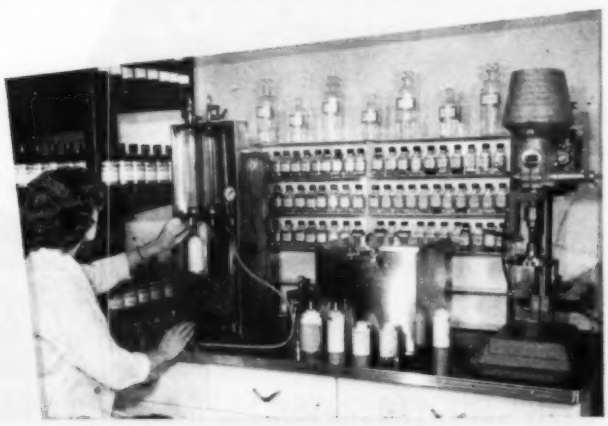

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Pharmaceutical Outlook Called Good As Consumer Education Continues

DESPITE the fact that the market is comparatively untouched, aerosol packaging of pharmaceuticals is "just what the doctor ordered" for the consumer, the drug field and the aerosol industry. This is the opinion of Donald S. Tuttle, Jr., sales manager of the Risdon Aerosol Division, Naugatuck, Conn., based on three pertinent facts:

1. Consumers who have used aerosol-packaged pharmaceuticals favor them wholeheartedly.

2. Aerosol packaging offers many unique advantages for pharmaceuticals.

3. Since the pharmaceutical field is largely untapped, it represents an almost completely new, wide-open market for manufacturers of aerosol containers, valves, and actuators, and for fillers.

"Although approximately 50 different pharmaceutical products have been successfully packaged as aerosols (the same products are offered in conventional packages), only a fraction of total aerosol sales in the United States are pharmaceutical products," he pointed out. "The most recent survey taken by the Chemical Specialties Manufacturers Association showed that in 1958 out of a total of 341,383,496 aerosol packages produced in all categories, only 7,129,608 were for pharmaceutical products. But, regardless of their unimpressive showing in the overall aerosol picture, pressurized pharmaceuticals are on the increase. The CSMA survey reports that they have risen nearly 900 per cent since 1953, the first year that pharmaceuticals were tabulated as a separate category. In that year, only 831,301 pressure-packed pharmaceuticals were sold."

A DuPont sampling indicates that although the number of consumers who have used pharmaceuticals in aerosol packages is minute, their acceptance of this comparatively new packaging method is great. In a sampling of 1,824 households, DuPont discovered (1) 93% use bandages of some kind, 91% use antiseptics and 73% use burn preparations; (2) the number who have heard of aerosol packaging for these three common household first aid items is extremely limited — only 3% knew about aerosol bandages, only 2% had heard of aerosol antiseptics, and only 4% were aware of aerosol burn preparations; (3) the number of women who had tried these aerosols was even smaller. Only .1% had used aerosol bandages, .4% had used aerosol antiseptics in aerosol form and 1% had used aerosol burn preparations.

A cheering note for aerosol manufacturers is that an overwhelming majority of the women who have tried aerosol pharmaceuticals favor them. For instance, of the 12 women who had tried burn preparations in aerosol form, 11 preferred them over other packaging because "they are easy to apply," "cover larger areas quicker," "are neat," "there's no need to touch the burn," "no waste," "more effective."

There is growing medical evidence that, from the point of view of doctors, aerosol packaging for some products is vastly superior to conventional packaging.

The A.M.A. (American Medical Association) *Archives of Dermatology*, January 1959, reports on a clinical study of the use of prednisolone ("Meti-Derm") aerosol spray applicator in treating 79 patients with dermatologic disease, particularly eczema of various types. In reviewing the study, Dr. Harry M. Robinson, Sr., of Baltimore, reports that patients were instructed to apply the aerosol to lesions in very short bursts of spray from a distance of 1 to 2 inches. No other therapy was used.

Results were graded as excellent if lesions involuted promptly and completely, good if response was somewhat slower or not complete, fair if some objective response occurred, and poor if the condition was not affected. There was also a separate category

(*Continued on Page* 133)

OUR OWN STRESS-CRACK RESISTANT FORMULAS SUPPLIED IN WHITE OR NATURAL—COILED, SPOOLED OR CUT TO EXACT LENGTH

for aerosols squeeze bottles, lotion pumps, garden sprays

Unique automated process controls quality, size & tolerance.

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Aerosol "Forums" to Highlight Canadian MCSA Toronto Meeting

TWO special aerosol forums will highlight the second annual meeting of the Canadian Manufacturers of Chemical Specialties Association as the association meets in Toronto's Royal York Hotel, Nov. 2-4. The forums, scheduled for the afternoon of Tuesday, Nov. 3, and Wednesday, Nov. 4, will feature four U. S. aerosol experts: Dr. Winston H. Reed, Reed Research Corp.; Victor DiGiacomo, Givaudan - Delawanna, Inc.; John Odoneal, Fairfield Chemicals Division of FMC; and Glenn L. Piper, of the Freon Products Division of DuPont.

The subject of tariffs, always an important one in a Canadian trade association meeting, will be discussed in a separate panel on the morning of Nov. 3. G. H. Glass, vice-chairman of The Tariff Board, Ottawa; J. A. Davis, chairman of the Chemical Industry Tariff Committee, and A. H. Robins, chairman of the CMCSA Tariff Committee will be the members of the panel, which will be followed by a question and answer period.

The aerosol part of the program will include the following papers:

"Automotive Aerosols," Glenn L. Piper.

"Insect Resistance Survey." John Odoneal.

"Perfumery Problems with Aerosols," Victor DiGiacomo.

"Commercial Development of an Aerosol Product," Dr. Winston H. Reed.

Dr. Winston Reed

Victor DiGiacomo

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NEWS of Pressure Packaging

Con Can Advances Cannella

L. G. Cannella has been appointed products sales manager of non-food cans for Continental Can Co., New York. He is succeeded in his former position as district sales manager for metal containers in New York City by T. V. Carley, who previously held the comparable position in Boston.

Mr. Cannella's non-food can line includes containers for all Aerosol products, as well as paints, chemicals, motor oil, anti-freeze, liquid detergents, and waxes.

•

Va. Smelting Names Maxwell

Virginia Smelting Co., West Norfolk, Va., has announced appointment of Hugh M. Maxwell to the newly created position of assistant manager, aerosol sales. He joined the Virginia aerosol department in 1958 as New York sales representative and will now make his headquarters at the company's executive offices in West Norfolk, Va.

James H. Hoskins, Southeastern representative, will succeed Mr. Maxwell in the New York area.

The company reported that this appointment is the beginning of an expansion program in the industrial aerosol field. At the present time the aerosol sales department maintains sales offices in New York, Cleveland, Chicago, Atlanta, Los Angeles and Seattle.

•

Larrick Seeks Label Change

Food and Drug Administration Commissioner George Larrick is seeking a special labeling law to cover pressurized food containers and other "hazardous" household products, reports the current issue of *Food Engineering*. He is recommending "Warning" or "Caution" labels on these cans, the report said.

His proposal, made before the Senate Commerce Committee, was followed by an argument from a spokesman for Reddi-Wip, Inc., a leading aerosol whipped cream marketer, who pointed out that any such regulation should come under the Good, Drug & Cosmetic Act.

Congress adjourned before acting on the proposal, which would replace the old Federal Caustic Poisons Act of 1927.

•

Mennen Appoints Two

The Mennen Co., Morristown, N. J., has appointed Sylvester Cleary to be marketing service manager and Thomas Brady as product development manager.

Philipson to ATI Post

Davis Philipson has been appointed director of purchasing at Aerosol Techniques, Inc. Assistant director of purchasing for the past year, he was previously associated with A. C. Gilbert, Casco Products, and Powr-Pak.

Davis Philipson, ATI Director of Purchasing

Hair Sprays Termed "Menace" in New British Report

A NEW report of possible lung damage resulting from use of aerosol hair sprays has been reported in the English press and in U. S. newspapers through the syndicated Science Service. Source of the newest report is an article by Dr. B. G. Edelston, physician-in-charge of the chest clinics at the Folkstone and Dover Hospitals in England. According to Dr. Edelston, the inhalation of hair sprays was responsible for one woman's loss of appetite, cough, and "suspicious" shadows on her lungs.

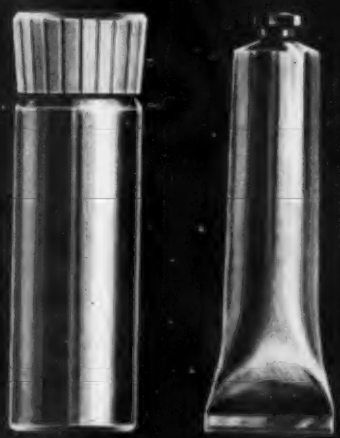
Dr. Edelston's report was apparently issued within a few months of the definitive paper on the subject delivered to the Scientific Section of the Toilet Goods Association in May of this year (*Aerosol Age*, July, page 36). Co-authored by J. H. Draize, A. A. Nelson, S. H. Newburger, and E. A. Kelley of the Division of Pharmacology and Cosmetics of the FDA, it apparently cleared six leading formulations of U. S. hair sprays of contributing to the formation of pulmonary thesaurosis in test animals. Dr. Edelston's report on the case appears in *The Lancet*, highly-regarded British medical publication.

Dr. Edelston's key case was strikingly similar to the one reported in the St. Louis Hospital (*New England Medical Journal*, March, 1958) which resulted in the FDA study. The English patient said she had used two brands of hair spray, beginning about a year previous to her appearance at the hospital. She had used them twice a day for six months, and then stopped. Tests for tuberculosis and other such diseases, blood tests and physical examinations of the women showed nothing, but chest X-rays are reported to have shown lymph node enlargement in both lungs.

Several months after she stopped using the hair spray, the report continues, the symptoms disappeared. Dr. Edelston points out that the natural and synthetic resins used in hair sprays can produce granulatoma and granule-like lumps in the lungs, and he suggested one solution might be a recommendation for use of the face masks when applying such products.

"Hair sprays come into the category of hazardous aids to beauty, despite the careful directions for their application on the containers," he concluded.

No finer metal containers made anywhere



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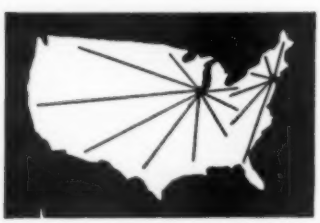
There are many other important pluses which *only* G. Barr & Company can offer. We would like to tell you about them, at your convenience and without obligation. Just contact our nearest office for facts.



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Lorant Heads Velsicol Research

Bernard H. Lorant, recently named assistant to the president of Velsicol Chemical Corp., Chicago, has been assigned full responsibility for the company's over-all research and development activities. He will also continue to be in charge of the legal and patent functions.

Mr. Lorant, a graduate of the University of Illinois and John Marshall Law School, joined the corporation in 1946 and was named assistant to the president in April, 1959.

Velsicol Chemical Corporation is a basic manufacturer of industrial and agricultural chemicals with headquarters and laboratories in Chicago, and manufacturing plants at Marshall, Ill. and Memphis, Tenn.

•

Colorite Announces Expansion

Colorite Plastics of New Jersey, Inc., Paterson, N. J., manufacturer of aerosol dip tubing, last month announced an increase in production and research facilities in the first phase of a long-range expansion program. The company recently completed a new building of 15,000 square feet, in which new high-volume equipment will be installed.

Capital investment in buildings and machinery has been reported by the company to exceed $500,000. Included in the expansion is a new laboratory and a custom compounding service available to the plastics industry. A wide range of compounds will be marketed by Colorite through its Unichem Products Division.

•

Dow Corning Names Three

Dow Corning Corp., Midland, Mich., last month announced three appointments in its sales department. William W. Pedersen has been transferred from manager, Cleveland sales office, to Midland where he will serve on the new corporate planning committee. Max H. Leavenworth, manager at Dallas, will succeed Mr. Pedersen in Cleveland, and Edwin Haire, of the Dallas office, was named to succeed Mr. Leavenworth.

Colgate Plans New Research Center in New Jersey

The Colgate-Palmolive Co., New York, announced last month it will establish a multi-million dollar center for basic and applied research adjacent to the Rutgers University Science Campus at New Brunswick, N. J.

Edward H. Little, board chairman and president of the company, said the installation will represent a major step forward in Colgate-Palmolive's plan to widen its research program to fit the expanding horizons of its business. Mr. Little added: "Our scientists at the new research center will seek to extend the boundaries of knowledge in many scientific fields. From their efforts in the years ahead should come new and improved products of value to people everywhere."

The 200,000 square-foot research facility will be constructed on a site in the University Heights area overlooking the Raritan River. Purchased from Rutgers University, the 75-acre tract borders on the University's science center which is planned to be one of the largest of its type in the country.

When completed, the research headquarters will house the biological and dental groups and many other Colgate-Palmolive Research sections. Much of the company's long-range, basic studies will be undertaken there as well as part of its product development work now being carried out at the company's main manufacturing plant in Jersey City.

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THE SPACE DEODORANT THAT KILLS ODORS CHEMICALLY!

Salesmaker is right! There's a large segment of the buying public that objects to strongly perfumed deodorizers. Turn these objections into sales for you by using Metazene in your aerosol formulations.

Metazene acts differently from other space deodorants in that it actually *destroys odors chemically*. Not a masking agent, not a desensitizer. Metazene stands alone in its complete odor killing properties.

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French to New "Freon" Post

The appointment of Dr. Frank E. French, Jr., to the newly created position of manager of new product and market development in the Du-

Dr. Frank E. French

Pont Company's "Freon" Products Division, Wilmington, was announced late last month.

Dr. French, for the last three years a member of Dupont's development department, joined the company in 1943 as a senior engineer in the Grasselli Chemicals Department (now the Industrial and Biochemicals Department).

A native of Cincinnati, Ohio, Dr. French was graduated from the Massachusetts Institute of Technology in 1943 with a bachelor of science degree. After wartime service as electronics officer in the U. S. Navy, he returned to M. I. T. where he was an assistant in the Chemical Engineering Department during 1946 to 1947, receiving his doctorate from that department in 1948.

•

FTC Cites Allchem

An order by a Federal Trade Commission hearing examiner announced recently would require Allchem Manufacturing Co., 15 W. 39th St., New York, to stop misrepresenting that its "Kill Flame" fire extinguisher is non-injurious to health when used to extinguish a fire, or is effective in putting out all types of fires. This is not a final decision of the Commission and may be appealed, stayed, or docketed for review.

"Kill Flame," Examiner Edward Creel found, is not "safe" and "non-toxic," as claimed on containers and in advertising. Its chemical components, propellants 11 and 12, decompose on hot surfaces and in a flame and give off highly toxic substances which may be harmful or lethal in a closed room or when no ventilation is provided.

The claim "Stops every kind of fire" also is false, he ruled. The product, he said, is not effective in extinguishing subsurface or deep-seated fires in ordinary combustible materials such as wood, cloth and paper.

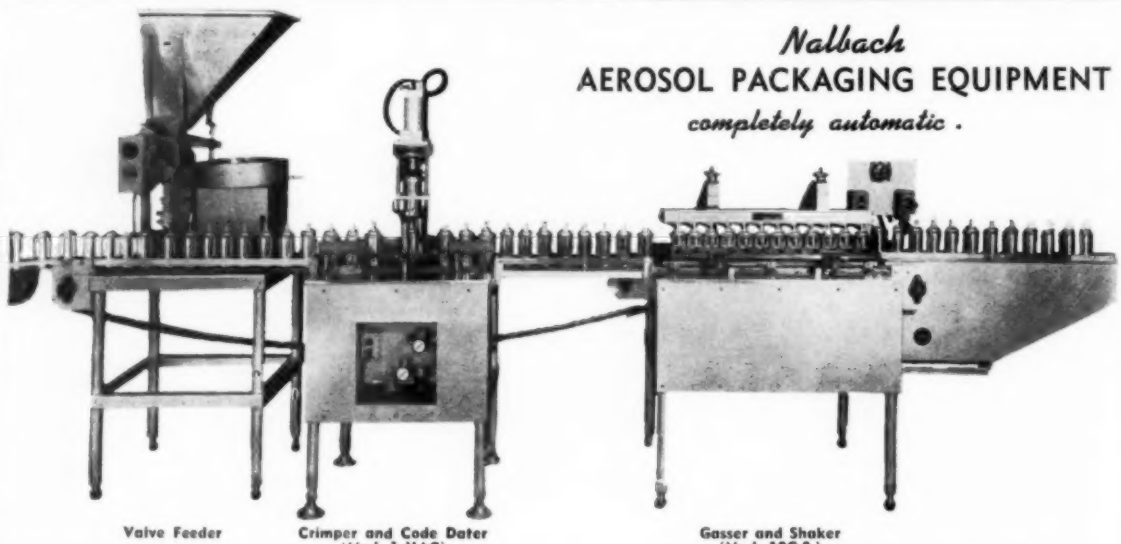
Mark Schrier and Charles Goldberg, Allchem's president and principal stockholder, respectively, also are cited in the examiner's order. The respondents neither answered the FTC's June 2 complaint nor appeared at the hearing on August 12 and were held in default.

•

Max Factor Names Berger

Adele Berger has been appointed a product manager in the United States Merchandising department of Max Factor & Co., Hollywood, Calif.

Prior to joining the Hollywood make-up manufacturing company, Mrs. Berger had been associated with a New York cosmetic firm for the past five years.



Nalbach
AEROSOL PACKAGING EQUIPMENT
completely automatic.

Valve Feeder — Crimper and Code Dater (Mod. 1-HAC) — Gasser and Shaker (Mod. 12G.S.)

THE CRIMPER:
- Crimps and code dates simultaneously
- Features a cap-and-valve centering device
- Crimping head is adjustable for height and depth of crimp desired

THE GASSER AND SHAKER:
- Gasses 12 containers simultaneously
- Adjustable to line speed, shake, time, and height changes.

These are but a few of the excellent features engineered into this equipment. Available as a unit or as separate components.

write today for detailed information

JOHN R. NALBACH ENGINEERING CO.
6139 OGDEN AVENUE CHICAGO 50, ILL.

She never needs to look very far for some perfumed product she'll like. Many products she looks at, to choose from, have the advantage of Norda good scents.

Quality comes from Norda. New, continuing research, new emphasis upon more excellence than ever, give reasons for notable new reliance on Norda.

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MONTREAL · HAVANA · LONDON · PARIS · GRASSE · MEXICO CITY

Nelson to New L&F Post

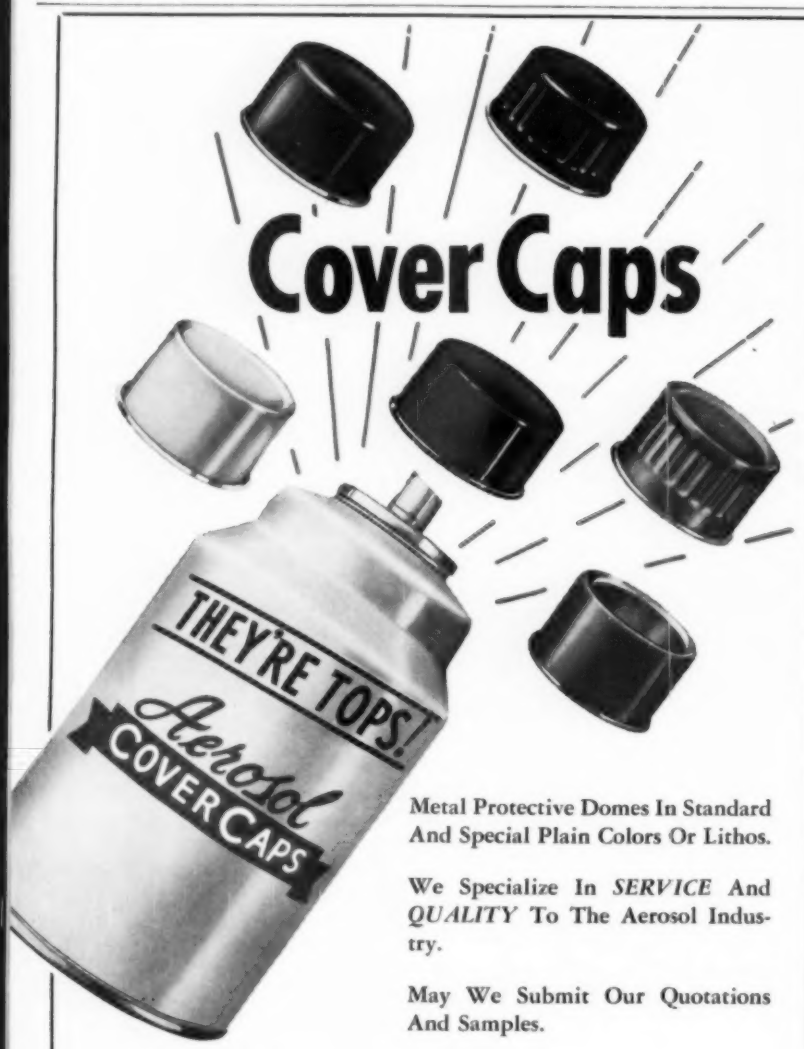
The Lehn and Fink Division of Lehn and Fink Products Corp., New York, has named Edgar W. Nelson to the newly-created post of general manager. He was previously senior vice-president of the Market Planning Corp., an affiliate of McCann-Erickson, Inc.

In his new post he will take over direction of the division's overall administration, including sales, merchandising, advertising, and promotion. The division markets a number of aerosol products.

•

Perry Filler to Britain

Perry Industries, Inc., Brooklyn, N. Y., has named Flexile Metal Co., Bessemer Drive, Stevange (Herts.), England, to be its sales agent in Great Britain. Prime unit for the aerosol industry is the "Model G Perry Accofil" powder filler, a unit designed to deposit solid slugs of powder into aerosol containers at speeds of up to 30 per minute.



Metal Protective Domes In Standard And Special Plain Colors Or Lithos.

We Specialize In *SERVICE* And *QUALITY* To The Aerosol Industry.

May We Submit Our Quotations And Samples.

West Penn Mfg. & Supply Corp.

809 Second Avenue Brackenridge, Pa.

"A Quarter Century of Specialized Metal Closure Manufacture"

Lefcoe Off to Europe

Sylvan Lefcoe, president of Par Industries, Los Angeles, left California Sept. 12 on a Pan American Airways ways flight over the North Pole for an extended business trip to Europe. He will exchange technical information on aerosol production and marketing with prominent aerosol manufacturers in Europe and on the Continent.

Included on his itinerary are visits with Klarre & Co. AG, Stockholm, Sweden; Aerosol Service AG, Riehen, Switzerland; Druk-Pak AG, Zurich; and Societe Francaise de Recherchas Aerosol, Creteil, France.

Mr. Lefcoe reported that one of the purposes of the trip will be to make arrangements to manufacture some foreign products in his own plant in Los Angeles. Also, some aerosol loaders in Europe may be licensed to manufacture products now exclusive with Par Industries. Mr. Lefcoe added that his trip is an "educational" type program, in that he will be advising European manufacturers of the techniques used in America for production of aerosol products; and he, in turn, will learn of new European technology in the aerosol field.

•

D&O Marks 161st Anniversary

Dodge & Olcott, Inc., the oldest company in America specializing in the manufacturing and merchandising of essential oils, aromatic chemicals, oleoresins, seasonings, flavors and perfume bases, this month celebrates its 161st anniversary. General offices and laboratories of the company are at 180 Varick Street, New York City.

B.P.D.

BOMBRINI PARODI-DELFINO

Licensee for manufacture in the U. S. A.:
Aluminum International Inc
GENERAL OFFICES: 1855 BLAKE STREET
DENVER 17, COLORADO
TERMINAL BOX 5108 MAIN 3-5131

Seamless impact extruded aluminum containers for the aerosol industry

No crimps, no solderings, no seams, no cements, NO LEAKERS!

Maximum resistance to pressure: distortion of the container's bottom occurs at over 250 p.s.i.

Minimum weight: a 12 oz can weighs 1.41 ozs, a 6 oz can weighs .89 ozs.

Full range of sizes to meet any requirement of the aerosol industry: wide choice of diameters, lengths and shapes

Standard 1" opening to fit any normal cup-type aerosol valve

Perfect decoration of the cans; base-lacquering in any color plus lithographic printing in up to four colors

All containers may be internally coated with special lacquers if they are to be filled with corrosive products

BOMBRINI PARODI-DELFINO - 267, VIA DEL CORSO - ROME, ITALY

Bowles Given Citation

John Bowles, president of the Rexall Drug Division of Rexall Drug & Chemical Co., Los Angeles, last month was given a special citation from the U. S. Government in recognition of his efforts as host during the International Trade Fair in Poznan, Poland, this summer. At the fair Mr. Bowles' company exhibited the first American drug store ever shown behind the Iron Curtain.

In a newspaper interview last month, Mr. Bowles said he believed one of the prime weaknesses of the Communist economy was lack of consumer goods. About aerosols, he had this to say:

"It was almost incomprehensible to me that products packaged in aerosol containers would be treated as a phenomenon. Because we're so used to buying toothpaste, shaving cream, perfume, and countless other types of merchandise dispensed in this manner, it's extremely commonplace to us. But the people of Poland had never seen anything that came out of a container with such dispatch — and ostentation with such power.

"You wouldn't believe the enormity of their interest. Men and women stood in line — waiting their turn to push the button that would release a mound of shaving cream into a handkerchief. Then they'd rush their prize home for all their family and friends to see."

•

British Execs Visit ATI

Lord Kirkwood of Bearsden, director of Imperial Smelting Corp., of London, accompanied by his company's chemicals sales head, W. J. Carter, had a close-up view of the U. S. aerosol industry when they visited the plant of Aerosol Techniques, Inc., at Bridgeport, Conn. Imperial Smelting supplies "Isceon" aerosol propellant to Midland Aerosols, Ltd., with which Aerosol Techniques is associated in Great Britain. The two British executives were the guests of H. R. Shepherd, president of ATI, who conducted them on a tour of his company's pressure-packaging and laboratory facilities.

•

Shulton Enters Hair Color Field

Shulton, Inc., New York, announced last month the acquisition of Tecnique, Inc., a midwest manufacturer and distributor of hair coloring products, presently located in Minneapolis.

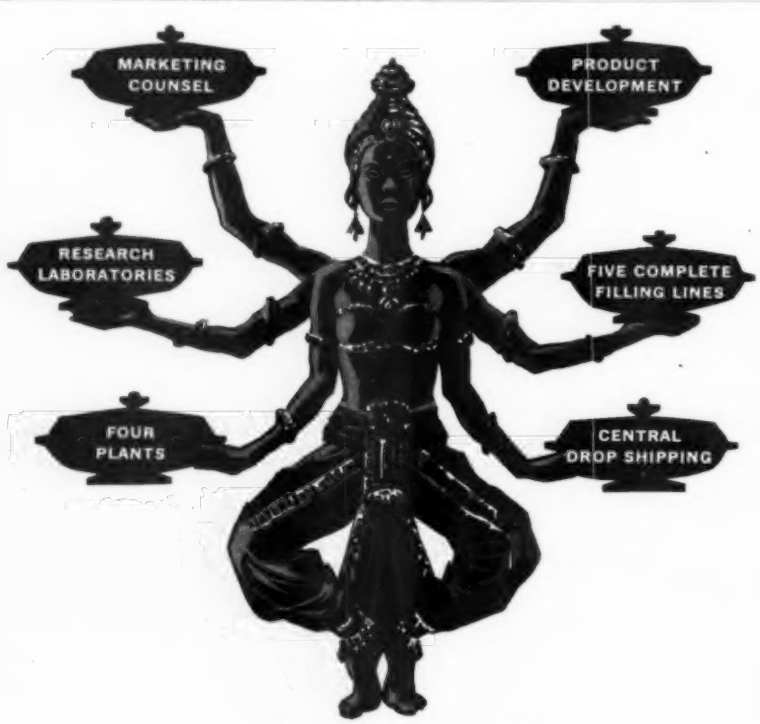
Sig Pass, who as head of Tecnique originally developed "Tecnique Color-Tone," a hair color cosmetic, will continue his present duties as president of Tecnique, Inc., which will operate as a subsidiary of Shulton.

The transaction was an outright purchase for cash. There was no disclosure of the amount involved or of the Tecnique sales figures. "Tecnique Color-Tone" is distributed nationally in most key markets, including department stores, independent and chain drug stores, and is distributed for professional use in beauty salons.

•

Ann Fisher to Mary Chess

Mary Chess of Canada, subsidiary of Mary Chess, Inc., New York, has named Ann C. Fisher to the post of sales director.



a truly complete service
...from the oldest and leading custom-loaders of aerosol specialties

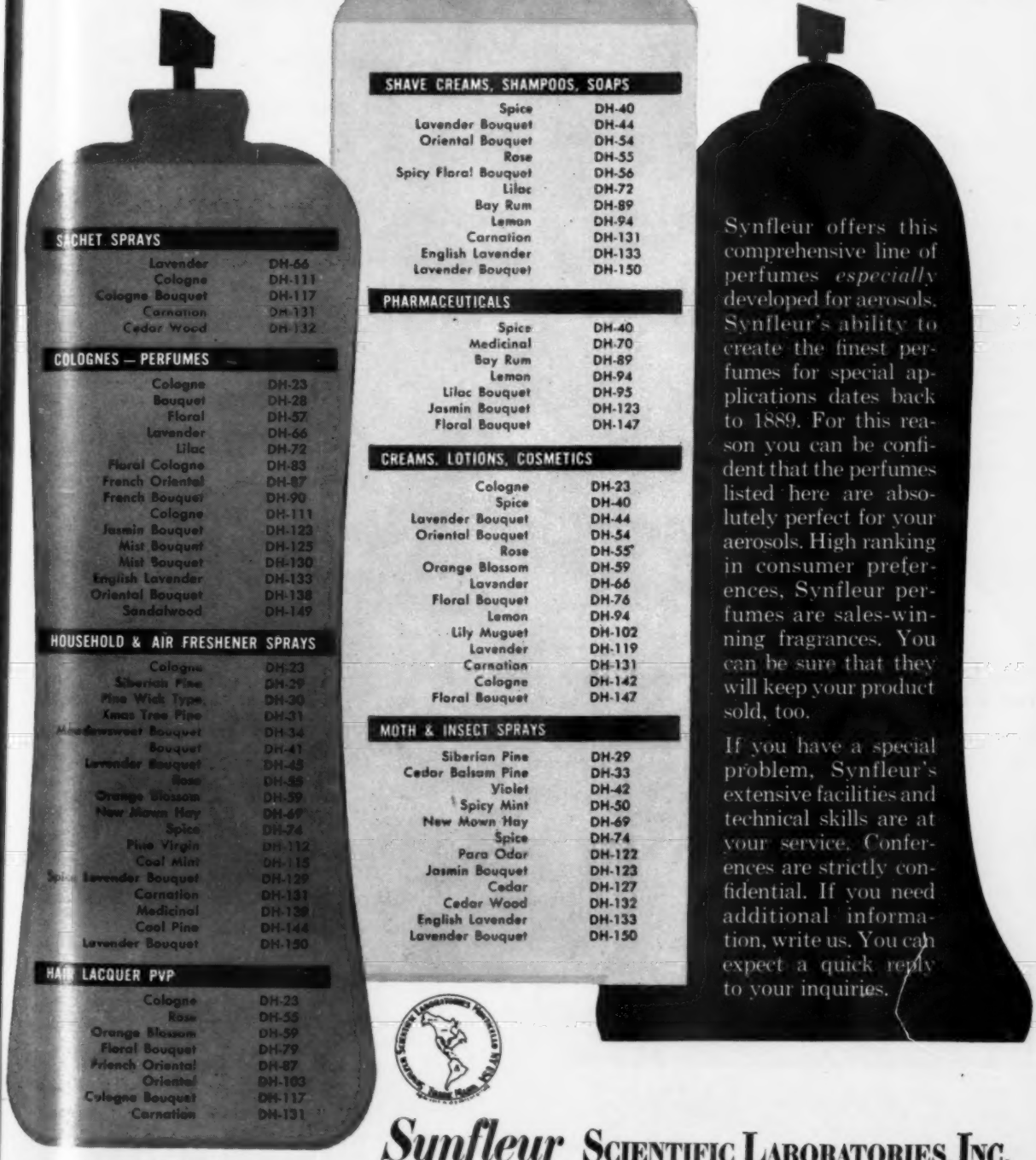
Sprayon has handled the greatest possible variety of contract-loading assignments for many of the nation's largest manufacturers. This experience, plus Sprayon's outstanding engineering and production facilities, is your best means to a commercially successful aerosol package. Problem product or routine product, get Sprayon's dollars-and-cents answer to your next loading job.

Sprayon
PRIVATE LABEL AEROSOLS

SPRAYON PRODUCTS, INC. • 2075 EAST 65 STREET • CLEVELAND 3, OHIO

Psst! there's nothing finer

Perfumes for AEROSOLS by Synfleur



SACHET SPRAYS

Lavender	DH-66
Cologne	DH-111
Cologne Bouquet	DH-117
Carnation	DH-131
Cedar Wood	DH-132

COLOGNES — PERFUMES

Cologne	DH-23
Bouquet	DH-28
Floral	DH-57
Lavender	DH-66
Lilac	DH-72
Floral Cologne	DH-83
French Oriental	DH-87
French Bouquet	DH-90
Cologne	DH-111
Jasmin Bouquet	DH-123
Mist Bouquet	DH-125
Mist Bouquet	DH-130
English Lavender	DH-133
Oriental Bouquet	DH-138
Sandalwood	DH-149

HOUSEHOLD & AIR FRESHENER SPRAYS

Cologne	DH-23
Siberian Pine	DH-29
Pine Wick Type	DH-30
Xmas Tree Pine	DH-31
Meadowsweet Bouquet	DH-34
Bouquet	DH-41
Lavender Bouquet	DH-45
Rose	DH-55
Orange Blossom	DH-59
New Mown Hay	DH-69
Spice	DH-74
Pine Virgin	DH-112
Cool Mint	DH-115
Spice Lavender Bouquet	DH-129
Carnation	DH-131
Medicinal	DH-139
Cool Pine	DH-144
Lavender Bouquet	DH-150

HAIR LACQUER PVP

Cologne	DH-23
Rose	DH-55
Orange Blossom	DH-59
Floral Bouquet	DH-79
French Oriental	DH-87
Oriental	DH-103
Cologne Bouquet	DH-117
Carnation	DH-131

SHAVE CREAMS, SHAMPOOS, SOAPS

Spice	DH-40
Lavender Bouquet	DH-44
Oriental Bouquet	DH-54
Rose	DH-55
Spicy Floral Bouquet	DH-56
Lilac	DH-72
Bay Rum	DH-89
Lemon	DH-94
Carnation	DH-131
English Lavender	DH-133
Lavender Bouquet	DH-150

PHARMACEUTICALS

Spice	DH-40
Medicinal	DH-70
Bay Rum	DH-89
Lemon	DH-94
Lilac Bouquet	DH-95
Jasmin Bouquet	DH-123
Floral Bouquet	DH-147

CREAMS, LOTIONS, COSMETICS

Cologne	DH-23
Spice	DH-40
Lavender Bouquet	DH-44
Oriental Bouquet	DH-54
Rose	DH-55
Orange Blossom	DH-59
Lavender	DH-66
Floral Bouquet	DH-76
Lemon	DH-94
Lily Muguet	DH-102
Lavender	DH-119
Carnation	DH-131
Cologne	DH-142
Floral Bouquet	DH-147

MOTH & INSECT SPRAYS

Siberian Pine	DH-29
Cedar Balsam Pine	DH-33
Violet	DH-42
Spicy Mint	DH-50
New Mown Hay	DH-69
Spice	DH-74
Para Odar	DH-122
Jasmin Bouquet	DH-123
Cedar	DH-127
Cedar Wood	DH-132
English Lavender	DH-133
Lavender Bouquet	DH-150

Synfleur offers this comprehensive line of perfumes *especially* developed for aerosols. Synfleur's ability to create the finest perfumes for special applications dates back to 1889. For this reason you can be confident that the perfumes listed here are absolutely perfect for your aerosols. High ranking in consumer preferences, Synfleur perfumes are sales-winning fragrances. You can be sure that they will keep your product sold, too.

If you have a special problem, Synfleur's extensive facilities and technical skills are at your service. Conferences are strictly confidential. If you need additional information, write us. You can expect a quick reply to your inquiries.

Synfleur SCIENTIFIC LABORATORIES, INC.
MONTICELLO, N. Y.

ATLANTA • DETROIT • LOS ANGELES • NEW YORK • SAN FRANCISCO • MEXICO, D. F. • HAVANA • MONTREAL • Guatemala City • San Salvador • San Pedro Sula
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New York Sales Office: Telephone Plaza 7-1960

Onyx Oil Appoints Bouroff

Dr. Peter P. Bouroff has been appointed assistant to the president of the Onyx Oil & Chemical Co., Jersey City, N. J. He will also serve as plant manager for Onyx's Jersey City and Staten Island, N. Y., plants. Dr. Bouroff was formerly manager of the Chemical Divisions of E. F. Drew Co., Boonton, N. J.

An active member of the New York Academy of Sciences, he received his doctorate from the Sorbonne (Paris) and came to the United States in 1949. Onyx Oil & Chemical Co. is a leading producer of special industrial compounds, textile finishes, anti-static agents, and surfactants.

•

Reddi-Wip Names Ad Agency

Reddi-Wip Inc., Los Angeles, California, has appointed North Advertising Incorporated as its agency for "Reddi-Wip" whipped cream, effective January 1, 1960. Reddi-Wip plans to spend more than $1,000,000 in advertising-promotion next year.

North will immediately begin implementation of the 1960 advertising campaign. Key personnel at all three North offices (Chicago, New York, Beverly Hills) will service the account.

•

Libson to Rexall Drug

Philip Libson, prominent for 15 years in the cosmetic, toiletries and packaging fields, has been named merchandising manager, cosmetics and toiletries, for the Rexall Drug Co., Los Angeles. He formerly was director of package development for Max Factor and Co.

He is a graduate of Amherst College and currently is teaching two extension courses in the Engineering Division of the University of California at Los Angeles. They are "Creative Packaging of Consumer Goods" and "Theory and Practice of Packaging Development." Mr. Libson also is now completing a book on packaging.

In 1957 Mr. Libson was recipient of a "Man of the Year" award from the California Packaging Club for "outstanding leadership and service in the industry."

D&O Adds to Sales Staff

Edward Onyskow, who last month joined the ranks of Dodge & Olcott, Inc., sales representatives in the New York area, obtained his B.S. in chemistry from Seton Hall and went on to graduate study at the Stevens Institute of Technology. He joined D&O in 1953, first as analytical chemist, then research chemist. During the last year the role of sales correspondent was added to his duties.

Speckhals Joins Colgate

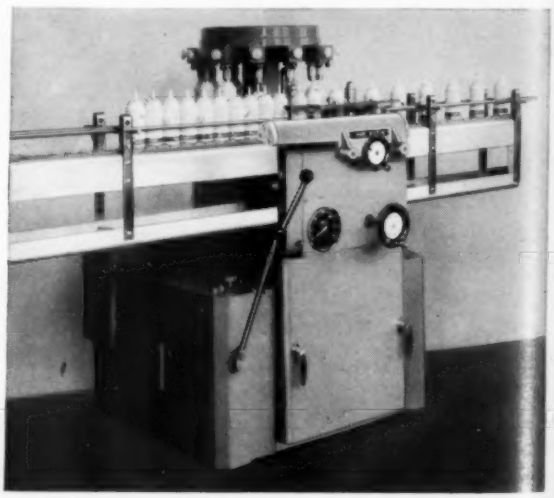
Kenneth H. Speckhals has joined the evaluations section of Colgate-Palmolive Company's Household Products Research and Development Department.

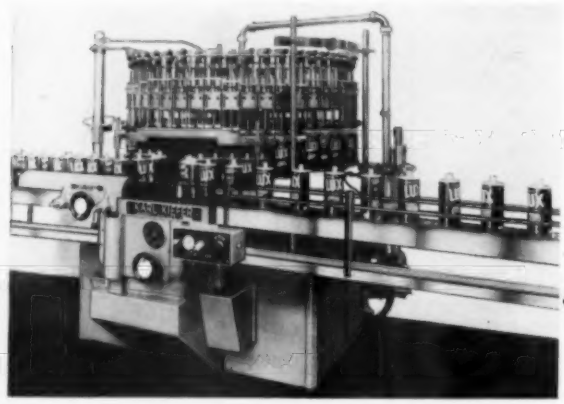
He comes to Colgate directly from the University of Pittsburgh where he recently received his B.S. degree in chemical engineering. At the university he was associate editor of the student engineering magazine and a student member of the American Institute of Chemical Engineers.

KARL KIEFER "Gas Jet" CHARGING UNIT

Straight line or Rotary—any speed
FOR LIQUID AND GASEOUS PROPELLANTS

There is a Kiefer product FILLING MACHINE to satisfy your every need, for measuring liquids, semi-liquids.





KIEFER PRESSURE-VACUUM FILLER-PIN POINT

has the distinctive and unbelievable feature of filling any container WITHOUT use of a SEAL. An automatic cut-off operates at your selected liquid level, giving you "Pin Point" accuracy. Speed unlimited!

for POLYETHYLENES..BOTTLES..JARS..TINS.
WRITE FOR INFORMATIVE TREATISE
ON AEROSOL PROCEDURE.

The Karl Kiefer Machine Co.

934 MARTIN STREET CINCINNATI 2, OHIO
NEW YORK • BOSTON • CHICAGO • SAN FRANCISCO • PHILADELPHIA
HOUSTON • VANCOUVER • SAVANNAH • LOS ANGELES • LONDON, ENGLAND

Ask us for samples of new "invisible" dip tubing (tinted) for products packaged in glass.
LEADING PRODUCTS OF THE WORLD HAVE BEEN DISPENSED FROM THEIR AEROSOL CANS THROUGH OVER 250,000,000 FEET OF AEROFLEX "P" DIP TUBES!
AEROFLEX "P"® DIP TUBES!
First Grade virgin materials are used exclusively in the manufacture of Aeroflex "P" dip tubing. The very finest raw materials are compounded into this special crack-resistant formulation. Then Anchor inspects and controls the quality of each reel during production. Shipments are guaranteed to be of uniform size, odorless, non-toxic and are laboratory tested for crack resistance. Write Today for booklet "Extruded Plastics".
ANCHOR PLASTICS COMPANY
36-36 36th Street, Long Island City 6, N. Y. • RAvenswood 9-1494
Custom Extruders Since 1941

VARIATIONS ON A THEME BY NATURE

Begin with a standard of incomparable natural fragrance.
Add an intimate knowledge of chemistry's finest aromatics.
Then blend through the skill, experience and vivid
imagination of the master perfumer . . . and you have FLEUROMA'S
"variations on a theme by nature". . . fragrances that
forge new traditions in the art of creative perfumery.

FLEUROMA INC.

NEW YORK LONDON PARIS SAO PAULO

ATI Signs Design Consultant

Aerosol Techniques, Inc., Bridgeport custom filler, has announced that Fay Mowery Moore, designer

Fay Mowery Moore, ATI design consultant

and artist, will be associated with the company as design consultant. Her services will be made available to ATI customers in the cosmetic, toiletry goods, and other fields. Her principal background is in the art and fashion world.

She is a graduate of Bennington College and the Yale Graduate School of Drama. She has been a display artist with Bonwit Teller, fashion stylist with B. H. Wragge, and a designer with Nelly Don in Kansas City, and has served on the faculties of Carnegie Institute of Technology and Yale University.

•

Revlon Product Wins Award

Revlon's "Satin-Set Pin Curl" spray has been named one of the top ten most appealing packages, from the standpoint of consumer preference. The award was announced by the Better Packaging Advisory Council, which selected Revlon's product by means of a poll taken of 249,222 customers while they were actually in the process of shopping.

The nation-wide survey, undertaken in the major cities and in hamlets with populations as small as 500, was reportedly the largest and most comprehensive ever undertaken in the packaging field. The Better Packaging Advisory Council is a non-profit organization devoted to improving packaging through market and laboratory research.

Teams of professional interviewers spent seven months at exits of supermarkets, drug stores, department stores, independent grocers, five-and-ten cent stores, and variety shops, and as the consumers emerged with their packages they were asked: "Of all the products you buy, which one was the best package?" The object of the poll was to determine the consumer's personal and spontaneous reaction to package preference.

Altogether, among ten packages listed by the Council, "Satin-Set" ranked ninth and was the only aerosol product mentioned.

•

New Plant for Reddi-Wip

One of the West Coast's most modern aerosol filling plants will open in Southern California soon, according to a report issued last month by the Calamia organization. Production capacity of the new facility, to be located in the central manufacturing district of Los Angeles, will exceed 25,000 cans per eight-hour shift, according to Waldon Calamia, vice-president.

The plant is specifically designed to handle production runs of "Reddi-Wip" and "Top-Wip" products (also "Fount-Wip," an institutional whipped cream product in stainless steel returnable cans). The company will also package a line of "Rod's Dressings" including, roquefort, sour cream, thousand island, and bleu cheese.

The plant will cover 20,000 square feet of floor space, all on one level, and an additional 25,000 square feet of loading docks and parking area. Eight shipping and receiving doors are designed for the plant which will receive the final production equipment in December.

Research work is progressing on an aerosol package for the line of Rod's Dressings, and production capacity is adequate to take care of this new aerosol food product when it reaches the marketing stage, according to Waldon Calamia.

An open house, to include representatives of industry and the press, is being planned for early winter when the plant officially opens.

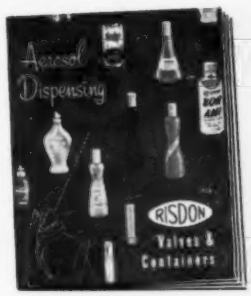
•

Ruston to Lanolin Plus

Lanolin Plus, Inc., Chicago, has named Charles R. Ruston to the post of executive vice-president. He had previously been with Max Factor, Revlon, and Colgate-Palmolive.

New Booklet On

AEROSOL DISPENSING



Via RISDON

Valves & Complete Containers

To up-date your knowledge of what's new in aerosol dispensing and packaging, send for this free Risdon booklet. It covers the complete Risdon line in 16 colorful, illustrated pages. Helps you to select the type of Risdon valve or dispenser best suited for your product whether packaged in glass, metal or plastic.

Includes details on Risdon's GB Valve, Micro-Mist® Valve, small and large capacity metering valves, 5210 Valve, special actuators and on Risdon's line of complete aerosol-dispensing containers. Actual size illustrations show the Mini-Mist® and Vaniti-Mist® refillable containers and the Handi-Mist® non-refillable package.

Send For Your Free Copy

THE RISDON MANUFACTURING CO.
AEROSOL DIVISION
NAUGATUCK, CONN.

RI-116

WANT TO FILL —ANYTHING?

COLTON

Small, Accurate Fills

CONTAINERS: vials, bottles, jars, cans.

PRODUCTION: up to 480 fills per minute.

TUBE FILLING: metal or plastic.

COLTON-HOPE

Filling Alcohol to Caulking Compound

VOLUME: ¼ oz. to 1 gallon.

PRODUCTION: models for speeds up to 300 per minute.

PRODUCTS: foods, dairy products, drugs, paints, cosmetics, industrials.

CONTAINERS: bottles, cans, tubes, jars, paper cups, pails.

COLTON-ALPHA

Aerosol

ROTARY AND STRAIGHT LINE: gassers, pressure fillers, shakers, crimpers, testers.

LABORATORY EQUIPMENT: hand operated.

VOLUME: up to 500 cc.

CONTAINERS: cans, bottles and vials.

Send for the new Colton chart of filling machine applications. It shows machine types, capacities, speeds, product types, etc., of the world's most complete line of filling equipment.

ARTHUR COLTON CO.
3452 E. Lafayette
DETROIT 7, MICHIGAN

ARE YOUR PRODUCTS SELLING IN PROFITABLE VOLUME TO —

- ☐ Hospitals
- ☐ Hotels
- ☐ Restaurants
- ☐ Office Buildings
- ☐ Schools
- ☐ Manufacturers
- ☐ Greenhouses
- ☐ Garages
- ☐ Clothes Cleaners
- ☐ Upholsterers
- ☐ Farmers
- ☐ Food Processers
- ☐ Nurseries
- ☐ Armed Forces
- ☐ and many other Volume Users

Standard Sizes
55, 75 and 132 Cu. In.
Other sizes on request
240 lb. Working Pressure
I.C.C. Approved

HOW TO INCREASE SALES WITH KING SIZE T-M-C AEROSOL CONTAINERS

If you manufacture fluid, semi-fluid or powdered materials you can now sell the volume users with TMC KING SIZE Aerosol Containers. They give you the proven sales appeal of aerosol convenience in KING SIZE dispensers. It pays to sell quarts instead of ounces. When you make your products easier to use—people use more of it! It deserves looking into... write or phone

TUBE MANIFOLD CORPORATION
419 Bryant St. LUdlow 7900 N. Tonawanda N.Y.

CSMA Holds Fall Luncheon

Aerosol and perfuming techniques in the Orient are still behind those of the U. S., but are fast catching up. This was the opinion of two of the four luncheon speakers at the CSMA's general luncheon meeting on Sept. 14. The affair was part of the annual two-day meetings of the association's board of governors and committees.

The two speakers, John Rodda of Fairfield Chemical, and George Branigan of Ungerer and Co., recently returned from world tours which included visits to the Far East and Europe. Mr. Rodda mentioned in particular Tojo Aerosol, Japanese filler, whose plant he described as modern and very well equipped.

Clarence Carter, president of Continental Filling, another recent visitor to Europe, cautioned the audience that competition in the machinery field from Europe will grow stronger in coming years.

•

Schrader Announces New Valve

A. Schrader's Son, New York, announces a new toggle action valve for aerosol packages, which will be featured as "the valve that always dispenses in the right direction." If the button is pushed or tilted in the indicated place, the valve dispenses only straight ahead, away from the user, in the direction in which the finger is pointing.

The single design handles a wide range of viscosities and spray patterns. The interior orifice at the point of stem can range from .010 to .030 and the button orifice from .030 to .040. A. Schrader's Son is a division of Scovill Mfg. Co., 470 Vanderbilt Ave., Brooklyn.

•

Carle Conway Dies at 81

Carle C. Conway, former president and board chairman of Continental Can Co., died recently at Lake Placid, N. Y. at the age of 81. He was elected a vice-president and director of Continental Can at the time of its incorporation in 1913, and retired as board chairman in 1950. During his time with the company, its sales increased from less than $7 million to $398 million.

Mr. Conway was a principal founder of the Can Manufacturers Institute and was also active in the National Canners Association. In 1950 he established the Carle C. Conway Scholarship Foundation, which in the years since has awarded 46 scholarships to sons and daughters of Continental Can employees.

•

IFF Consolidates Canada Branch

The flavor and fragrance operations of International Flavors & Fragrances (Canada) Ltd. have been consolidated at one location in Toronto, under the direction of Fred Crowhurst, vice-president. International Flavors & Fragrances (Canada) Ltd. was recently formed through the merger of van Ameringen-Haebler (Canada) Ltd. and Polak & Schwarz (Canada) Ltd., as part of the world-wide organization which operates manufacturing plants, laboratories and creative facilities in 16 countries.

•

Threaten Container Strike

At press time contract renewal negotiations between the Steelworkers Union and two of the largest aerosol container producers, American Can Co., and Continental Can Co., appeared to have broken down. A strike, possible Oct. 1, would further complicate the aerosol container situation, which is in short supply because of the steel strike.

Chemists Discuss Skin Absorption

"Widespread and continuous use of cosmetics makes it imperative to develop information not only regarding the beneficial physiological effects of their components, but also regarding their potential unfavorable actions on the skin as well as systemic reactions," reported Raymond Suskin, M.D., University of Cincinnati when he appeared on a panel reviewing "Percutaneous Absorption," before the Society of Cosmetic Chemists. Some 300 industry, government, and educational representatives attended the two-day meeting, held Sept. 23-24 at the French Institute in New York City.

Participants in the panel discussions reviewed methods for measuring percutaneous absorption; factors with influence percutaneous absorption; and percutaneous absorption of cosmetic chemicals resulting in favorable and unfavorable effects, and factors resulting in unfavorable effects.

•

Aerosol at Food Show

An aerosol horseradish and garlic spread was one of the highlights of the annual Fancy Food Show held at the Hotel Astor in New York early last month. The product was developed by Reese Finer Foods, Inc., Chicago.

Ciba Revamps Production, Appoints L. H. Zahn

Changes in the organization of its production department have been announced by Ciba Pharmaceutical Products Inc., Summit, N. J.

Lawrence H. Zahn, formerly manager of the methods and package development division, has been appointed director of a newly created purchasing and package development division.

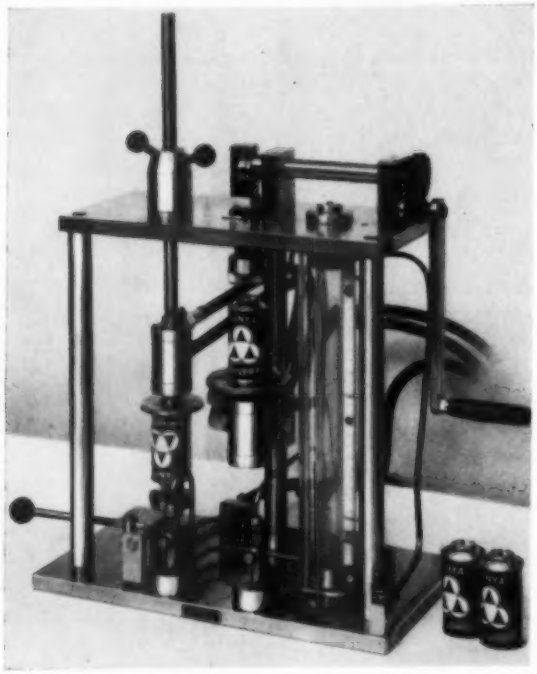
Dr. Roy Kuramoto, formerly manufacturing pharmacist in charge of special projects, has been appointed director of the pharmaceutical manufacturing division which has been reorganized to consist of two line sections, compounding and packaging operations; and two staff sections, mechanics and methods engineering, the later transferred from the methods and package development division which has been eliminated.

The new purchasing and package development division was formed by merging the purchasing division and part of the methods and package development division. The new division will consist of two sections: general purchasing, which will handle all purchases except those involving packaging materials; and the package development and procurement section, which will be responsible for the development of packaging ideas and the procurement of packaging materials.

Paul H. Schulz, formerly assistant manager for pharmaceutical operations, has been appointed manager of the package development and procurement section.

AERATOM LTD., EUROPE'S MOST IMPORTANT AND OLDEST MANUFACTURER OF EQUIPMENT FOR THE AEROSOL INDUSTRY,

SHOWS 3 EXAMPLES OF ITS PRODUCTION UNITS



AERATOM 510 B

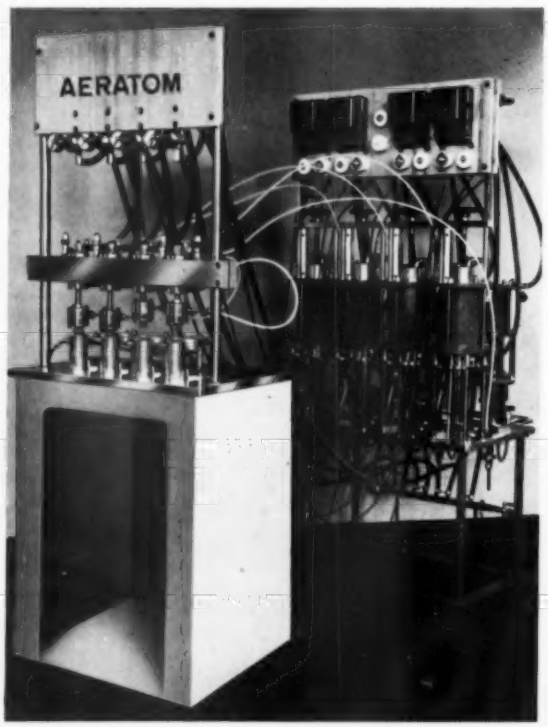
For laboratory use and small production runs:

Combined VALVE CRIMPER and PROPELLANT CHARGER

AERATOM 800

For medium industrial production:

Combined PROPELLANT CHARGER,
CRIMPER and PURGER,
based on the "Third System"
(the propellant is charged, not through the valve, but between valve and rim of can).



AERATOM 240 E el

For high-volume production

Four-Station HIGH-PRESSURE PROPELLANT CHARGER
with electronic control

AERATOM LIMITED, Rapperswil SG, Switzerland

TGA Plans Canada Meeting

The Toilet Goods Association last last month announced completion of plans for a joint convention with the Toilet Goods Manufacturers Association of Canada. The project has been under consideration for several years and the convention will be held at the Chateau Frontenac, Quebec, June 24-29, 1962.

A joint committee consisting of members of the Canadian association and the American association is currently being organized. The policy of the TGA (U.S.A.) provides that conventions are to be held away from New York in even numbered years. In 1960 the Annual Convention will be held at the Poland Spring House, Poland Spring, Me., with the 1961 convention to be held in New York.

•

Ungerer Names Hailer

Ungerer & Co., New York, has announced the appointment of F. J. Hailer, Jr. to represent the company in the New England area. He succeeds the late Warren G. Kell, who served Ungerer for many years in the territory.

•

Product Development Criticized

The often haphazard way in which new product development programs are administered and operated was criticized sharply by Harold C. Buell, vice-president of P. R. Mallory & Co., in an address to the marketing conference of the National Industrial Conference Board at the Waldorf Astoria Hotel in New York on Sept. 16.

He charged that relatively few companies have a written procedure for the selection and follow-up of new product ideas, and that few employ full-time product planning personnel. He said too many companies seem to rely on field reports from salesmen when contemplating new product introductions, rather than talking to sales prospects about the product's potential. "Sales personnel are by nature enthusiastic and optimistic and too frequently send in opinions which they think management wants to hear, rather than the facts."

Mr. Buell pointed out that often changes in market conditions during the development of the new product can seriously affect a decision regarding its development, and may dictate the altering or even discarding of the entire program. He cautioned against discord among the various executives, each with the interests of his own department uppermost in his mind.

•

Corday Names Wasserman

Arnold J. Wasserman has been appointed director of marketing for Parfums Corday, New York aerosol perfume marketer.

Barry to Colton Post

Appointment of John F. Barry as sales engineer in its New York District office at 303 Fifth Ave., New York 16, has been announced by Arthur Colton Co., Detroit.

Mr. Barry was employed as a sales and service engineer for the Hope Machine Co. of Philadelphia for more than 13 years. In his new capacity, he will handle sales of Colton-Hope filling machines and Colton-Alpha aerosol filling equipment in New York, Philadelphia and New Jersey.

If you would like to improve or expand your line of

COSMETIC and PHARMACEUTICAL AEROSOLS

you should request our new data sheet describing over thirty

DERMATOLOGICAL CHEMICALS

Including Analgesics, Anesthetics, Antibiotics, Antihistamines, Astringents, Antiseptics, Fungicides, Healing agents, Hormones, Quaternaries, Rubefacients and Sunscreens.

CHEMO PURO MANUFACTURING CORPORATION
150 Doremus Avenue, Newark 5, N. J.

Carbide Forms New Division

Union Carbide Corp., New York, has formed a new operating division to expand its consumer products business. The new division will be known as Union Carbide Consumer Products Company and initially, it will market the corporation's "Prestone" and "Eveready" brand products, which have been handled by National Carbon Co., division of Union Carbide. These products include batteries, anti-freeze, automotive specialty products, and garden chemicals, some in aerosol form. National Carbon will continue to manufacture and market electrodes, arc lighting carbons, brushes for electric motors and other carbon and graphite specialties.

Adger S. Johnson, formerly president of National Carbon, has been elected a vice-president of Union Carbide Corp. and will supervise the consumer product activities of the Corporation. Arthur C. Bryan has been appointed president of the Union Carbide Consumer Products Co. and William H. Feathers president of National Carbon Co.

Mr. Johnson has been president of National Carbon since 1951. He joined Union Carbide in 1928 and subsequently held various positions in production with National Carbon at several locations across the country, as well as abroad. He holds a bachelor of science degree in chemical engineering from Virginia Polytechnic Institute.

Mr. Bryan has been vice-president and general manager of National Carbon's consumer products group since 1954. He joined Union Carbide in 1935 and subsequently held a number of positions in National Carbon's sales organization. He holds the degree of bachelor of science in electrical engineering from the University of Nebraska.

Mr. Feathers has been vice-president and general manager in charge of industrial products since 1954. He joined Union Carbide in 1937 and his experience has been chiefly with National Carbon's production operations both in the United State and abroad. Mr. Feathers was graduated from Virginia Polytechnic In stitute in 1937 with a bachelor o science degree and did graduate wor under a Sloan Fellowship at Massachusetts Institute of Technology i 1951.

•

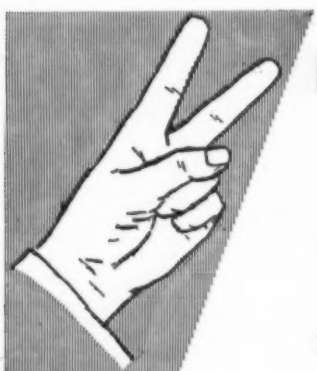
Repellent Plant for Canada

Diethyl toluamide, new insect repellent material receiving wide attention from U. S. aerosol formulators is now being produced in Canada a the Elmyra, Ontario, plant of Naugatuck Chemical Division of Dominio Rubber Co., Ltd. According to Naugatuck, the material produced in it plant is 95% meta isomer with les than 5% of the other related isomers

•

Yardley Names Bales

Yardley of London, Inc., New York, recently named John F. Bales to the post of executive vice-president. He had been vice-president in charge of sales.



Double Your Production with
THE AMCO HAND CRIMPER
FOR SMALL LOT AND LABORATORY WORK

1. Manually operated, short stroke and multiplied leverage lessen operator fatigue.
2. Single stroke action locates can, seats valve in position, and crimps.
3. Keyway guided head keeps crimper jaws centrally aligned for all can heights.
4. Convenient . . . can be mounted anywhere.
5. Completely enclosed for safety . . . no moving parts exposed.
6. Light, compact, durable unit weighs 35 lbs.

Immediate delivery from stock. Guaranteed for 90 days. Write for literature.

AMCO AEROSOL MACHINERY CO.

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1959 AEROSOL PACKAGE CONTEST

Sponsored by the Aerosol Division,
Chemical Specialties Manufacturers Association

Products may be entered in any of the following categories:

1. *Insecticides, Repellents and Moth Proofers*
2. *Room Deodorants*
3. *Paints, Enamels, Other Protective Coatings, and Paint Remover*
4. *Other Household Products (snow, polishes, glass cleaner, rug shampoo, water repellents, etc.)*
5. *Shave Products*
6. *Hair Preparations*
7. *Perfumes, Colognes, and Toilet Waters*
8. *Other Personal Products (dentifrices, shampoos, body deodorants, sun tan preparations, etc.)*
9. *Medicinal and Pharmaceutical Products*
10. *Industrial Products*
11. *Food Products*

- All entries will be made in the name of the brand owner or marketer. The product must be on the market and have been *freely offered for sale prior to Sept. 1,* 1959. Contract fillers are urged to enter packages for their customers. Be sure to enter vendor's name on form as required. Entries should be made only with permission of vendor and notification of any award will be sent to the vendor with the name of the individual furnished.
- Entries will close Oct. 15, 1959. All entries should be sent as soon after Sept. 1, 1959, as possible to the Aerosol Awards Committee at the CSMA office, and should comprise one completely *assembled empty* container with attached tag showing (a) name and address of the brand owner; (b) class in which entry is made by number.
- *Send one completed entry blank for each package entered.* Additional entry blanks will be sent promptly on request.
  Do not send counter displays, set up boxes, literature, etc.
- Only *one* entry may be made by any marketer or brand owner in any *one class,* but entries may be made in as many classes as desired by each.
- Entries are open to *any aerosol brand owner or marketer,* anywhere and are *not* restricted to members of CSMA.
- There are no entry fees or other charges to entrants.

Awards will be announced at the 46th annual meeting
of the CSMA, Dec. 7-9.

For further information, complete rules, and entry blanks, write to:

CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION
AEROSOL AWARDS COMMITTEE
50 East 41st St., 10th Floor, New York 17, N. Y.

PRESSURE FILLING EQUIPMENT

When you plan to fill in, renew, modernize, or otherwise adjust your production set-up, look for—

THE NEWEST IDEAS

to speed your output

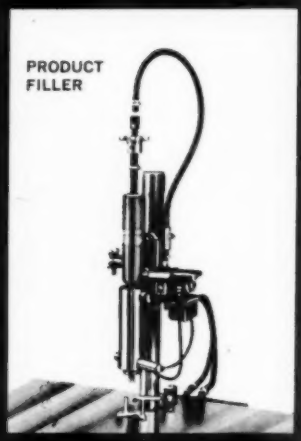
THE LATEST DEVELOPMENTS

in cost-cutting efficiency at

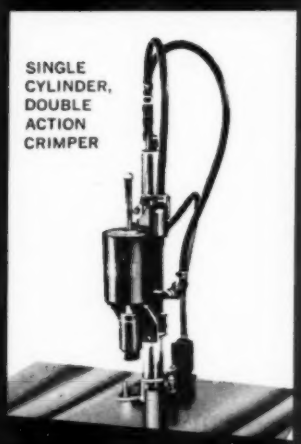
JG

MACHINE WORKS

MODEL 14 PROPELLENT INJECTOR



PRODUCT FILLER



SINGLE CYLINDER, DOUBLE ACTION CRIMPER

JG MACHINE WORKS SPECIALIZES IN PRECISION-ENGINEERED

PRESSURE FILLING AEROSOL EQUIPMENT

- **For all types of Containers:** metal, glass, plastic (rigid or semi-rigid).
- **For all Formulations**
- **Complete line of Standard Units,** Components and Attachments in general use.
- **Advanced Designs in equipment** incorporating newest refinements for speedier, more efficient filling.
- **Custom-Built** Machines, Mechanisms, and Assembly Systems in all capacities for regular and special-problem requirements.
- **Expert Reconditioning and Reconversions.**
- **Engineering Advisory Services. Projections.**

THE JG LINE OF AEROSOL MANUFACTURING EQUIPMENT IS COMPLETE, INCLUDING—

- Ball Feeders
- Drive Units
- Bottle Crimpers
- Purgers
- Can Crimpers
- Product Fillers
- Conveyors
- Propellant Accumulators
- Propellent Reclaimers
- Pumps
- Unscramblers
- Water Baths

PROMPT DELIVERIES on all items.

We build production machines to custom-made craftsmanship. Our dependable standard lines of pressure-filling aerosol equipment represent important advances in this field. The services of our experienced engineering staff are available to you for practical solutions of your problems, including especially designed units to meet particular requirements. Budgets are respected. No charge for consultation.

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New York 36, New York

Gentlemen:
I am interested in new ideas and latest developments in AEROSOL FILLING EQUIPMENT.

Please:
- ☐ Send me more information.
- ☐ Send me specific information on .....
- ☐ Call me (collect) on ..... for an appointment.
- ☐ Stop in and have a "chat" with me on .....

I understand there is no obligation for any technical advice, detailed information or consultation given me.

Name ..... Title .....
Firm .....
Address .....
City ..... Zone ..... State .....

Scranton Rep. Wins Krylon Sales Award

Leonard L. Weiss (center), president, Central Warehouse Sales Co., Scranton, Pa., accepts the keys to a new Cadillac sedan, presented by James W. Bampton, president, Krylon, Inc., Norristown, Pa. The car was the grand prize in a nationwide sales contest sponsored by Krylon, Inc., leading manufacturer of aerosol paints and protective coatings. Central Warehouse Sales Co. was the top winner over more than 2,000 Krylon jobbers competing in the Krylon contest. In the picture, left to right: Richard C. Newbold, Krylon vice-president, sales; James W. Bampton; Leonard L. Weiss; Roy Cantell, Krylon sales representative; and Elmore E. Kayser, Krylon vice-president for advertising and promotion.

Canadian Valve Tariff

The Canadian Federal Government has added aerosol valves to its Customs Tariff. Previously included under the general classification of industrial valves of all types, the new heading is expected to eventually free aerosol valves from some of the tariff inequities that have raised the consumer price of Canadian aerosols slightly above those of their U. S. counterparts.

Under Order-in-Council PC 1959-858, effective July 9, "Aerosol valve assemblies, not including metered aerosol valve assemblies, and parts thereof, for use in Canadian manufacture" are free of the British preferential tariff and the most favored nation tariff, but are subject to a general tariff of 30%.

So far as is known, all aerosol valves used on Canadian products are imported, either from the U. S. or from Great Britain.

•

Propellants in Warehouse Fire

Aerosol propellants, refrigerants, and ether, were among the materials destroyed in an eight-warehouse fire in Jersey City, N. J., on Sept. 9. The fire was made worse by large and small explosions as five and 50-gallon drums of chemicals shot into the air.

The warehouses are owned by the Wheeling Transportation Co., Inc., Jersey City, at what was once the old Lehigh Valley Railroad's Claremont Terminal. The explosive fire took place approximately one mile from the site of the famous Black Tom explosion in 1916.

According to Salvatore Criscuola, the fire evidently started in a warehouse which is called the "red label" building because it contained highly inflammable or explosive chemicals. Though conventional aerosol propellants are not generally considered flammable, when heated in a fire they usually explode the vessel in which they are stored, with considerable violence.

•

Delrin Plant in Production

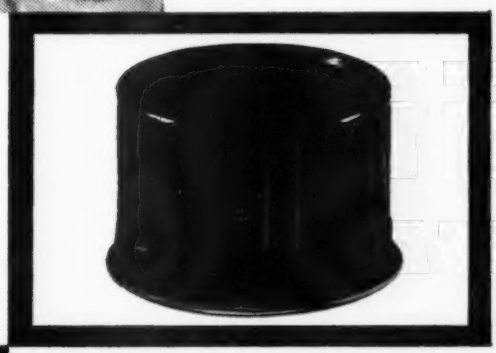
The new 12 million-pound-capacity Delrin manufacturing plant of E.I. du Pont de Nemours & Co. at Parkersburg, W. Va. will go into full production shortly. The material is a plastic resin reported to be especially adaptable to the production of small-size aerosol containers. Cost of development of the plastic material is estimated to have been $27 million.

•

Coty Names Products Director

Coty, Inc., New York, has named Y. M. Coty, grandson of the company's founder, to the post of new products manager. He has been with the company since 1949, serving in the cosmetic and perfume laboratories, in production, and in sales.

best dressed aerosols are wearing...



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185 Oakland Street, Brooklyn 22, N. Y.
EVergreen 3-2197

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for
the right odor for
your aerosol product

Our aerosol laboratory has developed
a series of especially adjusted perfumes
for use in pressurized products. For instance

BOUQUET FOR AEROSOL S 7747
$7.00 lb.

A fresh fragrant lily of the valley suitable for a variety of aerosol products such as personal deodorants, hair sprays, suntan preparations, toilet waters, etc.

We will be glad to
send a sample on request.

schimmel & co., inc.
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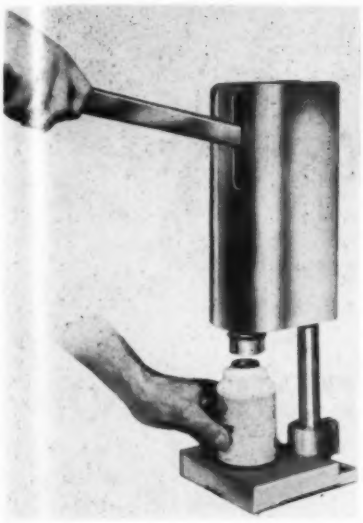
Equipment–Processes–Bulletins–

Hand Operated Crimper



A new hand operated crimping machine for the aerosol field has been announced by Aerosol Machinery Co., Westbury, L. I. This light, versatile unit is hand-lever operated and needs no additional source of power. It is said to be able to double the production of presently marketed machines which, like this one, use no outside source of power. The single stroke lever system is so designed that a short stroke affords multiplied leverage. It has a comfortable lever position which adds greatly to the ease of operation and high production, claimed. Operator fatigue is said to be reduced so that the unit can be used for small lot production as well as laboratory work; it is also economical.

The crimper weighs 35 pounds and has a keyway guided head which maintains the central position of the crimping jaws throughout all changes of container height. All moving parts are enclosed for operator safety; bolt-down holes are provided in the base for attachment at any line of production or to any laboratory bench. Parts and workmanship are guaranteed for 90 days.

Further information can be obtained by writing the company at 80 Magnolia Avenue, Westbury, L. I.

•

Polyethylene Aerosol Containers

A new line of blow-molded polyethylene aerosol containers was introduced last month in Great Britain by Lacrinoid Products Ltd., Gidea Park (Essex). Made of high-density material, the containers will reportedly withstand pressures from 44 psi to 85 psi, in a temperature range from —22°F. to 104°F.

Wall thickness of the container is approximately 0.024 inches, with a base double this thickness to reinforce the seam. The container is further strengthened by drawing in the base to give it a heavy and wide rim.

According to Lacrinoid, a wide variety of special shapes is possible. The unit was shown at the British Plastics Exhibition in July.

•

New Dry Ice Maker

The "Snow-Man," a machine for making carbon dioxide pellets for experimental use as aerosol propellants, has been introduced by Builders Sheet Metal Works, Inc., 108 Wooster Street, New York 12. The unit may be equipped with an adapter for making pellets one-half inch in diameter by 5/8ths of an inch long. Two such pellets in an aerosol can, it is reported, will create a pressure of approximately 80 psi.

The "Snow-Man" may also be used to produce dry ice for use in conventional cold filling techniques. The dry ice is used in conjunction with coils of copper tube, cooling the aerosol propellants well below their boiling point so that they may be handled in open containers.

AEROSOL TECHNIQUE'S lately-expanded headquarters in Bridgeport, Conn., include the world's most extensive aerosol laboratory facilities.

Coast to Coast
on the Job for You!

AEROSOL TECHNIQUES, INC.

Bridgeport, Connecticut

and

WESTERN FILLING CORPORATION

Los Angeles, California

These two leading aerosol packagers jointly make available to you the complete facilities of their modern plants and laboratories, plus their top production and research management at each point, for the creation, realization and marketing of your product.

In dollars and cents, and in shipping time, the freight savings of themselves put ATI-Western Filling customers at an immediate advantage.

We are proud to say that no other aerosol packaging organization can offer so much know-how and specialized production capacity. In our combined effort we offer to the marketer service, efficiency and economies assuring the maximum competitive benefits, plus a pooling of experience unmatched in the industry.

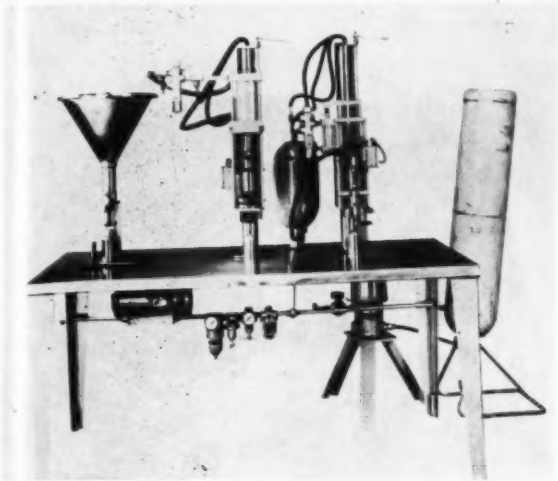
Wherever you are, you can get no better product, terms or service than from ATI and Western Filling.

AEROSOL TECHNIQUES, INC.
1730 State Street
Bridgeport 5, Connecticut
EDison 6-0176

WESTERN FILLING CORPORATION
4151 Bandini Boulevard
Los Angeles 23, Calif.
ANgelus 2-4168

WESTERN FILLING CORPORATION's laboratory in Los Angeles, Calif., was the first custom filler in the aerosol food field and has pioneered in saturated hydrocarbons.

New Semi-Automatic Line to Be Unveiled at New York Show



The new Kartridg-Pak line includes (left to right) the filler, crimper, and charger.

A NEW low-cost semi-automatic aerosol line will have its first public showing by Kartridg-Pak Co., Franklin Park, Illinois (formely Mojonnier Associates Division), in Booth 1218, at the Package Machinery Manufacturers' Institute Show in the Coliseum, New York, Nov. 17-20.

Called the "KP-1000," the line is a completely self contained unit, requiring only electric power, product and propellant to be put in operation. Capable of producing up to 600 cans per hour, it consists of a piston filler, a vacuum crimper, and a pressure filler (0 to 300 gm). It will be priced in the $6,000 to $7,000 range, which is one-third of the approximately $20,000 and up cost of completely automatic lines.

The new line is designed primarily for the small volume manufacturer or processor. Even amortizing the equipment over only five years, studies show that cost figures of 3 to 4¢ per can can be easily obtained. The KP-1000 is expected to find use both as a regular production line by the medium-sized processor and as an auxiliary line for pilot runs by a large-volume filler.

Penick Insecticide Booklet

S. B. Penick & Co., New York, has just issued a 40-page catalog covering the products of the company's Farm Chemical and Insecticide Division. In addition to presenting detailed information on product applications, the illustrated catalog describes Penick's research and production facilities.

Copies of the catalog are available by writing to: Farm Chemical and Insecticide Division, S. B. Penick & Company, 100 Church Street, New York 8, N. Y.

•

German Crimp Measurer

A precision device for measuring the crimp inside mounting cups of completed containers has been developed by H. C. Kroplin GmbH, Messwerkzeuffabrik, Schluechtern 3/Hessen, Germany. The instrument, which consists of a dial face equipped with two arms, has a measuring range from 24 to 28 mm. (15/16" to one inch) and an accuracy of reading of 0.01 mm. (.0004").

The feeler arms are approximately 1 and 13/16 inches long and the whole instrument weighs 5 and 3/8ths ounces.

•

Seamless Aluminum Containers

A monobloc seamless aluminum aerosol container has been introduced in England by Universal Metal Products, Ltd., Langley Road, Salford, Lancs., England. Made on a newly-installed automatic line, the container is presently being fabricated only in the six-ounce size. Available is a range of internal lacquers for use with products where there is likelihood of product-container reaction.

Alpine

NEW
Fragrances
and
Masking Scents for
Aerosol Products Are
Continually Developed
in Our Modern
Aerosol Laboratory

Up-to-Date Cosmetic
and Chemical Development
Facilities Are Available

Send for Our New
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Bulletin Today

ALPINE
AROMATICS
INCORPORATED
Metuchen, N. J.

AEROSOL TECHNIQUE'S lately-expanded headquarters in Bridgeport, Conn., include the world's most extensive aerosol laboratory facilities.

Coast to Coast
on the Job for You!

AEROSOL TECHNIQUES, INC.

Bridgeport, Connecticut

and

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Los Angeles, California

These two leading aerosol packagers jointly make available to you the complete facilities of their modern plants and laboratories, plus their top production and research management at each point, for the creation, realization and marketing of your product.

In dollars and cents, and in shipping time, the freight savings of themselves put ATI-Western Filling customers at an immediate advantage.

We are proud to say that no other aerosol packaging organization can offer so much know-how and specialized production capacity. In our combined effort we offer to the marketer service, efficiency and economies assuring the maximum competitive benefits, plus a pooling of experience unmatched in the industry.

Wherever you are, you can get no better product, terms or service than from ATI and Western Filling.

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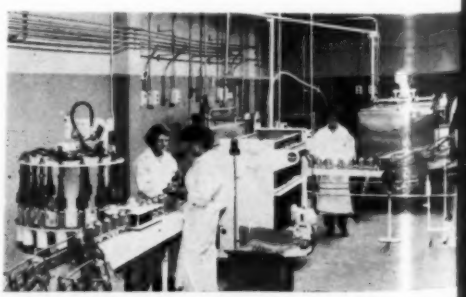
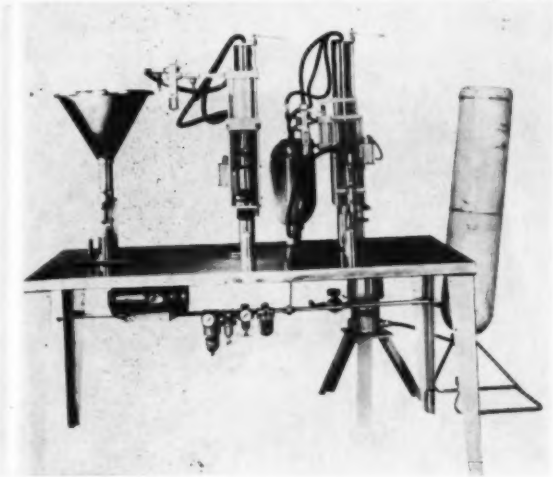


WESTERN FILLING CORPORATION's laboratory in Los Angeles, Calif., was the first custom filler in the aerosol food field and has pioneered in saturated hydrocarbons.

New Semi-Automatic Line to Be Unveiled at New York Show



The new Kartridg-Pak line includes (left to right) the filler, crimper, and charger.

A NEW low-cost semi-automatic aerosol line will have its first public showing by Kartridg-Pak Co., Franklin Park, Illinois (formely Mojonnier Associates Division), in Booth 1218, at the Package Machinery Manufacturers' Institute Show in the Coliseum, New York, Nov. 17-20.

Called the "KP-1000," the line is a completely self contained unit, requiring only electric power, product and propellant to be put in operation. Capable of producing up to 600 cans per hour, it consists of a piston filler, a vacuum crimper, and a pressure filler (0 to 300 gm). It will be priced in the $6,000 to $7,000 range, which is one-third of the approximately $20,000 and up cost of completely automatic lines.

The new line is designed primarily for the small volume manufacturer or processor. Even amortizing the equipment over only five years, studies show that cost figures of 3 to 4¢ per can can be easily obtained. The KP-1000 is expected to find use both as a regular production line by the medium-sized processor and as an auxiliary line for pilot runs by a large-volume filler.

Penick Insecticide Booklet

S. B. Penick & Co., New York, has just issued a 40-page catalog covering the products of the company's Farm Chemical and Insecticide Division. In addition to presenting detailed information on product applications, the illustrated catalog describes Penick's research and production facilities.

Copies of the catalog are available by writing to: Farm Chemical and Insecticide Division, S. B. Penick & Company, 100 Church Street, New York 8, N. Y.

•

German Crimp Measurer

A precision device for measuring the crimp inside mounting cups of completed containers has been developed by H. C. Kroplin GmbH, Messwerkzeuffabrik, Schluechtern 3/Hessen, Germany. The instrument, which consists of a dial face equipped with two arms, has a measuring range from 24 to 28 mm. (15/16" to one inch) and an accuracy of reading of 0.01 mm. (.0004").

The feeler arms are approximately 1 and 13/16 inches long and the whole instrument weighs 5 and 3/8ths ounces.

•

Seamless Aluminum Containers

A monobloc seamless aluminum aerosol container has been introduced in England by Universal Metal Products, Ltd., Langley Road, Salford, Lancs., England. Made on a newly-installed automatic line, the container is presently being fabricated only in the six-ounce size. Available is a range of internal lacquers for use with products where there is likelihood of product-container reaction.

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Glass Bottle Valve Crimper

A new method of crimping metal aerosol valves onto glass containers has been developed by PMC Industries, Hackensack, N. J. Equipment employed is a modification of the company's RS-1800 high-speed sealer, a multi-spindle rotary machine for attaching metal seals to pharmaceutical vials.

The method is said to provide a smooth, wrinkle-free finish, even when operating at speeds in excess of 200 per minute. Companion equipment is available for applying the dip tube to the valve, and for placing the valve assembly onto the bottle prior to sealing.

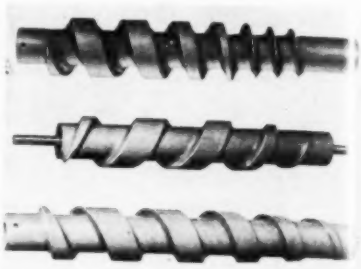
•

New Dip Tube Manufacturer

The United States Gasket Co. Division of The Garlock Packing Co., Camden, N. J., recently announced an expansion of its facilities to include extrusion of polyethylene, nylon, and polypropyelene dip tubing for aerosol packages.

Custom Timing Screw

A new custom timing screw that will accurately feed round, oval, square or rectangular glass bottles,



metal cans or plastic containers on a variety of packaging machines has been developed by Arthur Colton, 3400 E. Lafayette, Detroit 7. Called the "Kinsley Timing Screw," the device will pick up containers from a conveyor at random, move them under controlled acceleration and speed and discharge each container at the required spacing for the packaging operation.

Each timing screw is generated to fit a specific container or range of container diameters. When new container shapes or sizes are designed, custom built Kinsley timing screws to fit these can be quickly generated and delivered.

Colton reports that a wide range of packaging machines can utilize the Kinsley screw, including fillers, cappers, labelers, washers, tablet counters, cottoners and inspection and banding equipment. The device can also be effectively applied as a line divider for line synchronization.

The screw form is made to match that of the specific container it will move, as well as the machine pitch requirements. A two-point contact can be maintained if necessary between the screw and the container, thus providing maximum stability for moving tall, normally unstable containers.

The screw is made of non-marring, long-wearing, resin-impregnated linen or cellulose material. It is driven by the normal power take-off from the packaging machine drive to assure absolute synchronization with the operation being performed.

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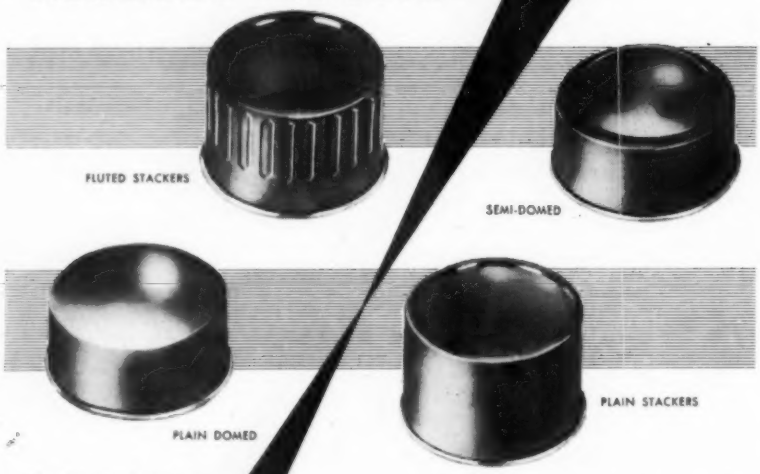

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Hexachlorophene Bulletin

Sindar Corp., New York, has just published a supplement to its Technical Bulletin H-1, "G-11® (Hexachlorophene U.S.P.)—An Annotated Bibliography." The supplemental Bibliography appears in the *Sindar Reporter*, Number 3, 1959 and includes abstracts of 23 articles and 4 patents. An index to the supplemental abstracts similar to the one used in the original technical bulletin has also been published in order to give readers easy access to any particular subject of interest. Copies may be obtained from Sindar Corp., 321 West 44th Street, New York 36, N. Y.

•

Aerosol Dishwashing Compound

"Squick," aerosol dishwashing detergent, is now being offered to private label distributors by Fuld Brothers, Inc., Baltimore custom filler. Equipped with a metering valve, the 16-ounce container is said to be the equivalent of two gallons of ordinary detergent.

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New Aerosol Ski Wax

Though an aerosol ski wax was among the first "true" aerosol products developed by Norway's Eric Rotheim in the early 1930's, since that time there has been no commercially significant aerosol ski wax put on the market. However, Redox Oy, Helsinki, Finland, has recently introduced a new line of ski waxes called "Rex". The product is custom filled by Berner Oy, leading Finnish filler and is packaged in a six-ounce aluminum can (made by Printal Oy, Helsinki) with a Precision valve.

There are four different wax formulations in the Rex line, each formulated for use under different conditions depending on the temperature and type of snow. With the help of easily evaporating solvents, the greases have been brought to the desired viscosity. According to Berner Oy, the inner pressure in the containers had to be raised to prevent valve clogging and insure against formulation changes.

•

Aerosol Study Chambers

A specially designed chamber for quantitative studies of aerosols of infectious micro-organisms was described in a paper last month by Fred E. Ray, of the U. S. Army Biological Warfare Laboratories, Fort Detrick, Md. The paper was presented before a symposium on current research in bioengineering of the Fermentation Subdivision of the Division of Agricultural and Food Chemistry at the American Chemical Society Meeting in Atlantic City.

Though the device is designed primarily to permit studies of "aerosols" of highly infectious materials with minimum hazard to operating personnel, it may also be of interest in advanced studies of aerosol particle size and impact. The study described by Mr. Ray took place in a cylindrical tank 14 feet in diameter and 30 feet tall with a volume of 100,000 liters. He described methods employed to obtain and maintain a wide range of temperatures and relative humidities of the atmosphere in the chamber, as well as techniques for sampling the particles

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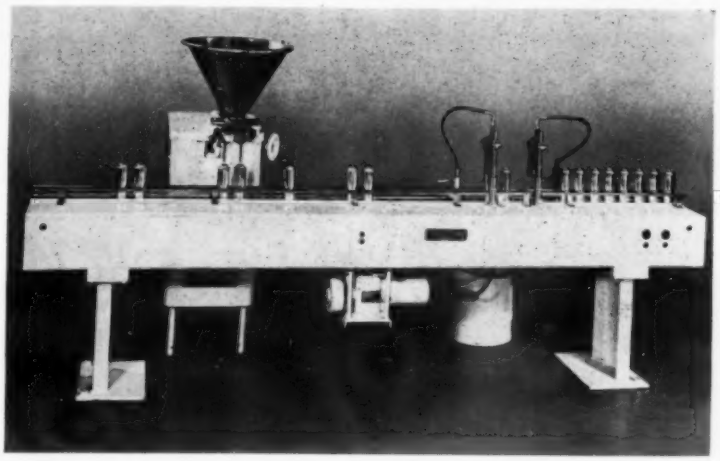
Colton to Unveil New Straight-Line Aerosol Filling Line



A new aerosol filling line of straight-line design for medium-volume automatic production will be unveiled by Arthur Colton Co., Detroit, at the forthcoming Packaging Machinery Manufacturers Institute Show to be held in the New York Coliseum from Nov. 17-20.

The new Colton-Alpha aerosol filling production line will handle up to 30 containers per minute on a single straight line. A twin line with similar equipment will pressure-fill up to 60 containers per minute. Included in the line is a variable speed drive; a double-ported, two-nozzle Model 15MS Colton-Hope filler; a single head crimper and a single-head pressure-filler that enables the container pressurizing operation to be carried out without refrigeration. The line will fill containers with liquids and light viscous materials. The straight-line automatic production unit is designed to permit low-cost changeover from one container to another.

•

Kirkby to Croda Post

N. R. Kirkby has just been appointed general sales manager of Croda, Ltd., Goole, Yorks, England, affiliate of Croda, Inc., New York. He joined Croda 20 years ago, and most recently was the company's chief technical representative in the Sheffield area.

A Correction

In the September issue of *Aerosol Age* (page 62), there was a story about the development of a non-destructive testing aerosol called "Spotcheck". In this story Magnaflux Co., *actual* developer of the product, was described as a "subsidiary" of Solus-Schall, Ltd. Actually, Solus-Schall is the sales representative of Magnaflux in Britain.

Hostachem to Move to N. J.

Intercontinental Chemical Corp., New York, has announced that it will build a modern building of over 40,000 square feet in Mountainside, N. J. The building will be the new home for Carbic-Hoechst Corp., Hostachem Corp. and Hostawax Co., technical representatives and distributors for the products of Farbwerke Hoechst AG., West Germany, and Hoechst Chemical Corp., West Warwick, R. I.

Carbic-Hoechst which sells dyestuffs, pigments and textile chemicals, will move from 451 Washington Street, New York, and will have a modern laboratory for customer's service and application research, and a complete warehouse, including refrigerated storage.

Hostachem Corp. and Hostawax Co. will relocate their sales offices for chemicals and waxes from 350 Fifth Avenue.

Executive offices of Intercontinental Chemical and Hoechst Pharmaceuticals, Inc. will remain at the present location, 350 Fifth Avenue, New York.

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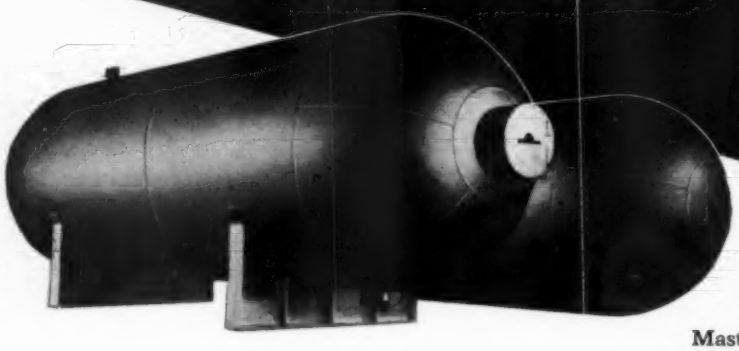

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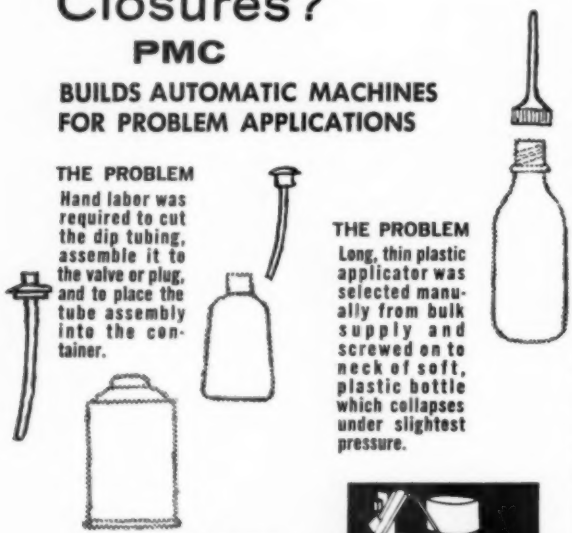


THE PROBLEM

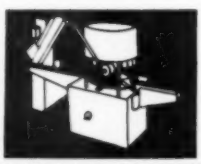
Hand labor was required to cut the dip tubing, assemble it to the valve or plug, and to place the tube assembly into the container.

THE PROBLEM

Long, thin plastic applicator was selected manually from bulk supply and screwed on to neck of soft, plastic bottle which collapses under slightest pressure.

THE SOLUTION

PMC Machines eliminated costly labor by performing all steps automatically.



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Aerosol Container

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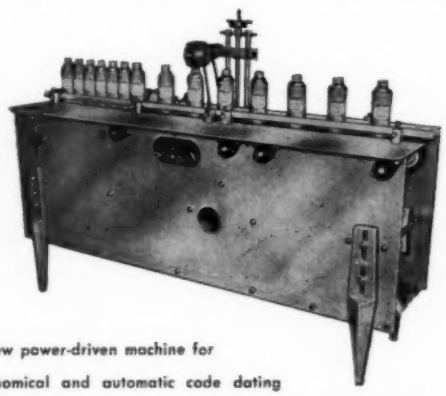

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Evans Research Names Four

Evans Research and Development Corp., New York, has added four new members to its laboratory staff.

Lawrence J. Miller, assistant research chemist, is formerly of Rubber & Asbestos Corp.

Deborah Schwimmer, junior research chemist, is a graduate of New York University.

George Iwaskow, laboratory technician, is completing his B.S. in chemistry at Long Island University.

Josephine Conticchio, junior cosmetalogist, is formerly of Lord & Taylor Beauty Salon.

Standardization

(*From Page* 82)

The suggested designations in the first column correspond to the maximum value of the capacity in cc given in column 2. Column 3 summarizes the percentage value for the tolerance of the volume as they could be chosen, with a preference as minus-tolerances. Column 4 contains the minimum values for the volume from which, in turn, the maximum values for the filling volume VF 60 can be calculated (Column 5).

Column 6 gives values for the capacities which were determined for some of the most popular aerosol dispensers according to the method described above. The containers under investigation, therefore, fit into the pattern of the suggested standard size series, if a volume tolerance of 10% is permitted. The suggestions in Figure III actually are intended to form a basis for discussion, which in turn may be the basis for setting up an international standard.

If a standard series of, say, four different sizes of aerosol containers were adopted on an international basis (on lines similar to those specified above) it would result in a considerable limitation of the various dispenser sizes; because hitherto numerous intermediate sizes used would be eliminated. This would result in the realization of the advantages listed in Figure I.

Standardization of Shapes and Dimensions

In a discussion of the standardization of certain parts, one usually thinks about an exact determination of shapes and dimensions rather than the "fixing" of a type series.

The establishment of such standards has brought great advantages to our entire industrial and technical world. If limitation of the numbers of models went further, economy would be increased still more. The introduction of suitable standard measurements would permit interchangeability of parts which would be of utmost importance in connection with spare parts service in varied fields. For instance, one common convenience that is possibly not fully appreciated is that one can buy spare electric light bulbs with threads that would fit into existing lamp holders in a number of countries.

Accurate determination of the measurements of aerosol dispensers is of little direct interest to the consumer. However, it is of great importance to the manufacturer, in whose plant the fabrication is simplified and the necessity of special adjustments and retooling can, to a great extent, be limited.

Experience indicates that a long way must be traveled before a standard measurement can be adopted to an extent to insure interchangeability of the same parts of different makes. Thus, for instance, despite the fact that the setting up of standards for food tins was begun 30 years ago, even today perfect interchangeability of containers is possible only in the most important sizes. In this case, the establishment of a standard was complicated by the fact that these parts were manufactured by some 200 different organizations!

In international standardization of food tins the fixing of accurate dimensions has, for the time being, been dispensed with and the standardization limited to determining equivalent sizes. This is a measure which has visual rather than technical importance. For aerosol dispensers

the determination of such equivalent dimensions is of little value, as technical interchangeability is not achieved by it and because by the proposed classification according to volume, a sufficient equivalence can be obtained.

It has already been pointed out that containers of tinplate, aluminum, glass, and plastic are all being used freely in the industry, and that each requires a different fabrication process (thus making a uniform standard measure impossible). At very best, therefore, it would be possible to set up separate standards for the principal dimensions of the four different types of containers. Of course, details of this task can be solved only after long study, but there are some features of aerosol dispensers which appear to be more easily handled. Typical is the accurate determination of container size. For example, the one-inch aperture on tinplate and aluminum cans are already basically the same dimension for all sizes of containers. Most gratifying, too, is the fact that the one-inch opening is used in most countries. However, this measurement does not correspond sufficiently well for valve mounting cups to be supplied without hesitation (in a single size only) by specialized firms. Standardization of this dimension would contribute much toward universally simplifying the manufacture and use of valve mounting cups.

Figure IV lists those measurements which are currently used for the manufacture of the one-inch aperture by leading firms. In addition to the coded designation of the companies in column 1, the respective nominal measurements and the maximum and minimum values resulting from the tolerances are given for the three decision measurements: the inside diameter, outside diameter, and curl thickness.

It is indeed surprising that the tolerances permitted by the various companies deviate so much, namely that some firms allow differences of only a few hundredths mm, while others regard several tenths of a mm as permissible.

From experience that a deviation in size of 0.2 does not affect the correlation of opening and mounting cup a proposed standard was set up (and is listed at the bottom of the table). The tolerance ranges given cover almost the entire field of hitherto normal dimensions. Only in a few measurements are there deviations (which are marked in the chart by small triangles). In the majority of cases the deviation is within 1/1000 mm, and therefore of no practical importance. Of the given measurements only four require a correction of 0.2 mm, which will undoubtedly be done by the respective manufacturers within the foreseeable future. A decision on this point should take place within clearly stated conditions specified in a standard to insure trouble-free use of standard valve cups for all aerosol containers with a one-inch opening. This may also make it possible to determine accurately the respective dimensions of the valve flanges.

With these proposals to standardize the valve mounting cup, it would be obvious to proceed one step further and attempt to standardize valve and dip tubes. But at this juncture it would be unwise to pursue a solution to this problem because there are so many varied requirements and so many unsolved problems.

Standardization of Contents

A certain amount of standardization of filling materials would be quite desirable from the standpoint of the consumer. This is a usual practice in other phases of packaging. For instance, in a number of countries evaporated milk tins of a content of 170 and 410 grams are standard. By measuring by weight the effect of heat expansion is largely eliminated, and the label must indicate the fat content of the concentrate so the consumer can be certain he has not been misled about this essential ingredient.

Again in the aerosol industry, conditions are much more complicated. A number of materials (e.g. whipped

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SNOW-MAN
DRY ICE MAKER

with adapter for making pellets ½" diameter x ⅜" long.

Two of these pellets in an empty 6 oz. can will create a pressure of approximately 80 lbs. Two of these pellets in a similar can half filled with water will create the same pressure due to the water absorbing some of the CO2.
For experimental work with CO2, the SNOW-MAN is a most valuable aid.
The SNOW-MAN may also be used to produce dry ice with Aerosol cold filling. The dry ice is used in conjunction with coils of copper tube cooling the aerosol propellants well below their boiling point so they can be handled in open containers.

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cream, hair lacquer, and insecticides) which differ greatly physically are used for the product. Also, in an aerosol container not only the filling material (the so-called "active ingredient") must be accommodated, but also the propellants. According to whether space atomization, surface spraying, or foaming is desired, the proportion of propellant varies between 10 and 90%.

This propellant varies in type and hence in specific gravity, and we are thus confronted with a number of possible combinations which make general standardization impossible. Most favorable for standardization in all of this is the possibility of fixing the quantity of certain filling materials, which has been done in Germany for many years in fruit and vegetable canning. These standard regulations are voluntary agreements which are intended primarily to safeguard the reasonable expectations of the consumer. Within the standard, tolerances of up to 10% are permitted.

Contrary to the case of vegetable and milk tins (where the contents have a relatively uniform specific gravity), the quantity packaged into aerosol containers will probably be more appropriately determined by volume rather than by weight. This particularly applies in Germany, where regulations specify that the maximum contents must be 95% of the volume of the dispenser. By introducing the minimum permissible volume content (which is 10% lower than the maximum filling volume) it is likely that a satisfactory framework for standard conditions could be achieved, which could then stipulate details of the compositions of the various filling agents.

One further field in the aerosol industry where advantages could be obtained by firm standardization is in the standardization of the outer packaging (e.g., the cartons). These would be better adjusted to standard pallet sizes to render storage and transport as economical as possible.

The determination of the size of the outer packaging depends to a great extent on the accurate size and dimensions of the dispensers. The discussion of details about fixing the outer packaging size must therefore be deferred until there is some decision made regarding the dimensions of aerosol containers.

Theoretically there is the possibility of some standardization of filling plants, though such a measure might be termed not practical because of the different filling demands and the varying propellants used in filling operations. Also, various filling processes are used and the number of filling plants is actually too small to warrant an attempt to standardize entire plants.

However, as soon as a standardization of the one-inch mounting cup opening for the various types and sizes of aerosol containers has been achieved, it will be possible to attempt standardization of the closure and thus appreciable advantages will be realized in spare parts service and procurement.

Any discussion of this theme would be incomplete unless it was indicated how this standardization can be achieved and exactly how it should be undertaken. I have come to the conclusion that the following procedures should be adopted:

1. To find out in which fields or specialized section the setting-up of an international standard would be of interest.

2. To clarify matters where proposals for such an international standard already exist or are being elaborated.

3. A decision on the present suggestions.

4. The setting-up of a preliminary standard on a national basis which could provide the basis of full international standardization. The detour via national preliminary standards seems advisable, because experience shows that the setting-up of international standards is a very complicated and lengthy process if national standards are not available as a working basis. The first national standard would preferably be issued as a preliminary standard. This indicates that it is not intended under any circumstances to incorporate all the

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details without alteration for the international standard. A preliminary standard always allows for some adjustment and voting.

5. As soon as a definite basis is available and the desire has been shown to exist for an international standard which could be practically formulated, an application could be submitted to Technical Commission 52 of ISO to include aerosol dispensers in their field of activities. This application would have to be supported by the national committees interested in international standardization.

Summary

We have seen that the aerosol presents great difficulties in attempting a general standardization because of

FIGURE IV

Firm	Internal nominal size mm	Diameter limiting max. mm	(J.D.) size min. mm	II Outside nominal size mm	Diameter limiting max. mm	(O.D.) size min. mm	III Curl nominal size mm	Thickness limiting max. mm	(C.T.) size min. mm
A	25,349	25,374	25,324	31,140	31,204	31,076			
B	25,297	25,322	25,284	31,140	31,292	30,988	3,302	3,429	3,175
C	25,415	25,502	25,324	31,293	31,496	31,090	3,327	3,454	3,200
D	25,40	25,502	25,298	31,140	31,394	30,886	3,302	3,429	3,175
E	25,40	25,50	25,30	31,10	31,20	31,00			
F	25,172	25,248	25,095						
G	25,40	25,55	25,25	31,20	31,40	31,00			
Proposed Standard	25,40	25,50	25,30	31,10	31,35	30,85	3,30	3,45	3,15
Tolerance	±0,1			±0,25			±0,15		

JAS 1959 (I "opening in aerosol dispensers)

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TGA Scientific Section Lists Program for December Meeting

A FULL program of papers to be presented before the mid-winter meeting of its Scientific Section has been announced by the Toilet Goods Association. The Dec. 1 meeting will be held in the Sert Room of the Waldorf-Astoria Hotel, New York, beginning at 9:30 a.m.

The formal program will include the following papers:

The Synthesis and Properties of Mercaptans Having Different Degrees of Acidity of the Sulfhydryl, by J. W. Haefele, R. W. Broge and W. L. Courchene. The Procter & Gamble Co.

Instrumental Evaluation of Citronella Oils and Palmarosa Oil—Geraniol Citronellol and other Constituents by James A. Rogers, Jr., Director, Instrumental Laboratories, Fritzsche Brothers, Inc.

Panthenol in Cosmetics by S. H. Rubin and L. Magid of Hoffmann-La Roche, Inc.

The Objective Measurement of Odor. III. Breath Odor and Deodorization, by Donald A. N. Mackay, Ph.D., David A. Lang, Ph.D. and Murray Berdick, Ph.D. Doctors Mackay and Berdick respectively are associate research director and coordinator of research of Evans Research & Development Corp. Dr. Lang is senior chemist of American Chicle Co.

Recent Advances in Instrumental Examination of Fragrance Materials, by Ernest T. Theimer, Ph.D., Director of Research, Van Ameringen-Haebler, Division of International Flavors & Fragrances, Inc.

Method for Protecting Peroxide Bleached Human Hair, by Peter Flesch, M.D., Department of Dermatology, University Hospital, University of Pennsylvania.

Methionine in Cosmetics and Pharmaceuticals, by Dr. H. J. Prebluda of U. S. Industrial Chemicals Co., and Irwin I. Lubowe, M.D., of Metropolitan Hospital Center of New York Medical College.

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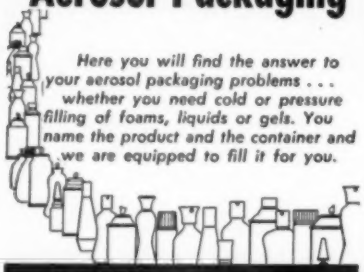

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its great versatility. In many phases of aerosol filling and package components standardization on any level is impossible. This article has dealt briefly with those which can be logically proposed for standardization.★

Equipment Leasing

(*From Page* 73)

it will feel any financial strain from having too much equipment out on lease at any one time.

Perhaps the newest of all companies interested in the leasing of aerosol equipment are two Junior Achievement Groups in Chicago. With all the money coming from enterprising teenagers, the rental offer was a natural. One group has rented a laboratory crimper and a pressure filler for $70 per month. Another, more aggressive, rented a laboratory crimper, pressure filler, a piston filler, and a water bath worth $2,040. But where else could a new company get such a full complement of equipment, on a month to month basis, for only $204 per month?★

Propellant Symposium

(*From Page* 68)

bility, which simply means that the amount of air required to make the mixture combustible can be varied over a wider range. However, in all cases, with the proper amount of air the mixture will burn and, if this mixture is ignited in a confined space an explosion will occur. Therefore products which in normal use do not result in flammable mixtures can cause serious accidents if applied in an unusual manner.

It is not inconceivable, for example that a child might be playing in a bathtub with an aerosol container in which butane or propane is incorporated as a propellant. Intrigued by the ability of the container to produce bubbles at the press of a tiny finger the child inverts the can underwater and presses the valve. Bubbling up through the water comes some butane or propane which, being heavier than

air, collects as a layer of gas atop the water in the tub. This gas, trapped in place by the sides of the tub, needs only a spark from any source to light it off.

Sound far-fetched? Many accidents do . . . until after they happen. But the hazard is there. And the question we must answer is simply whether or not the risk is worth the savings involved in using a hazardous, rather than a safe, propellant.

In brief, each product formulation must be considered both from the standpoint of economy in manufacture and from the standpoint of consumer safety and acceptance. Hazards involved vary from case to case. In the final analysis, each element in the industry, from raw material producer to packager to marketer, must reach his own decision as to the proper balance between safety and dollar savings.★

Quality Control

(*From Page* 70)

runs by gravity to the filler, is conveyed to the valve applicator, crimped and gassed, and then capped and boxed. The boxed product is immediately placed in 32-40° F. refrigeration or frozen until sold. The frozen product may be kept for three months.

Quality Control

Reddi-Wip operates a fleet of laboratory-equipped station wagons for maintaining the equipment and enforcing the strict quality control standards set up for its products. Each processing plant is visited at least six times per year. Dairy college graduates make these quality inspections, issue reports and discuss new equipment, equipment maintenance, supplies, processing procedures, formulas, and recommend corrective measures. Product is checked in the stores for temperature, code and appearance. At the processing plant the products are checked for pressure, mix composition, processing temperatures, net weight, flavor, color, body and texture, drainage, overrun, acidity, butterfat, total solids, B coli counts, standard plant counts, psychrophilic counts and the amount of product left in the can on complete dispensing. All this information is assembled by means of standard tests or special tests developed in our research laboratory. Local laboratories also are used to regularly check the finished products of each processing plant.

Another important function of the quality control supervisors is the collection of samples in the stores and at the processing plants. These are sent under refrigeration to the Quality Control Research and Development Laboratory in Los Angeles, where they are put through a complete quality control check. Photo 2 shows Joe Keepers, quality control supervisor, with a Reddi-Wip control station wagon. These cars average 60,000 miles each year in visiting processing plants.

The Quality Control, Research and Development Laboratory, maintained at the national headquarters in Los Angeles, is the real heart of the quality control program and research and development. From this laboratory is disseminated information on latest quality control methods, new quality control tests, and the latest knowledge and experience gained from articles, conferences and experimental work. For example, at the present time considerable work is being done to develop a quick test for shelf-life. A long shelf-life is important for a customer who may not use the can of whipped cream for many days or weeks after purchase.

The laboratory sends out periodical bulletins on quality control problems, special handling techniques, special tests, new machinery, maintenance, formulas, causes and prevention of defects and other pertinent data.★

Armstrong Laboratories

(*From Page* 66)

addition to the white uniforms, dust caps, rubber gloves, and stainless steel equipment, we have instituted a standard operating procedure for each day's work. Before the end of each shift, each woman cleans her own area by means of disinfectant

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"The claim by some aerosol fillers that they operate a 'sterile' filling room is patently ridiculous. No room in which there are people working *can be* termed 'sterile'. We think that our approach to good sanitary conditions, combined with careful safeguarding of the active ingredient, is the most that can be achieved under practical operational conditions."

Admitting that his company's pharmaceutical line is not equipped for high-speed production (present capacity 25,000 units per day), Mr. Armstrong pointed out that sanitary and quality control considerations have outweighed those of quantity production in every case.

"Our pharmaceutical line is just over two years old," he declared, "and during that period we have been learning ways to improve the efficiency and accuracy of each unit and each operation in the line. We intend to incorporate all this knowledge when we begin building a new pharmaceutical filling building adjoining our present building sometime next year."★

•

Alexander Boyle Dies

Alexander R. Boyle, who retired in 1957 as treasurer and a director of the Lehn & Fink Products Corp., New York, died early last month at the age of 71. He joined Lehn & Fink in 1925.

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Burke to Heyden Newport

The Heyden Newport Chemical Corp., New York, manufacturers of Strobane, has appointed Raymond M. Burke to its market development department. He was previously associated with U. S. Borax & Chemical Corp.

Pharmaceutical Outlook

(*From Page* 91)

for patients who reported relief of itching but in whom the lesions were unimproved. In no case did prednisolone aerosol worsen the disease or cause side effects.

Good or excellent results occurred in a total of 65 patients or 82.3%. One other result was considered fair. The lesions of 39 out of the 79 patients cleared after only one week of therapy. Two to four weeks of therapy were required for the other patients.

Nine patients whose lesions were such that no cure was anticipated reported marked relief from itching.

A comparison test on 12 patients using both prednisolone aerosol and a placebo spray showed that the aerosol was clearly superior.

Dr. Robinson concluded with the opinion that prednisolone aerosol appears to have several important advantages over other topical therapies, and is especially satisfactory for inflammatory lesions. Involution of these lesions occurred more rapidly than is usual with creams or ointments.

"There also appears to be more relief of pruritus with the aerosol than with creams or ointments. The cooling effect itself may be a healing factor, enhancing both the antipruritic and anti-inflammatory activity of prednisolone. . .

"Patients appreciate the fact that prednisolone aerosol is non-greasy, and nonstaining, and lesions need not be touched. If used properly the aerosol lasts longer than comparable amounts of cream and is more uniformly applied. This new vehicle is especially efficient when large surfaces or hairy areas must be treated. No side effects were observed."

A proprietary skin medication that is winning considerable acceptance is Pfizer's "Eez Acnecare," a flesh-tinted medicated foam which contains resorcinol, sulfur, hexachlorophene, zinc oxide, tyrothricin, alcohol and the propellant. To release the contents, the plastic-coated bottle is turned upside down and the push-button actuator is pressed lightly.

Aerosol-packaged pharmaceuticals have many advantages, Mr. Tuttle points out. For instance, the package is air-tight, spill-proof and leak-proof. There is no danger of a change in composition or of contamination. The package is a self-contained dispenser; the medicament can be applied rapidly and uniformly to the affected area without hand contact. An aerosol forms a fine mist spray ideally suited to inhalation. By using a metered valve, the dosage can be controlled automatically. Aerosol medicaments can also be designed to dry very rapidly when administered topically. Since there is no possibility of air reaching the product, the potency of the original active ingredients is preserved.

Although most pharmaceutical products now on the market are for topical use, aerosols have distinct advantages, too, as dispensers of inhalants, as well as nasal preparations, Tuttle points out.

Aerosols make it possible to obtain a high concentration of drug over a limited area. There is almost instant response to the medication and there is less danger of decomposition of the medicament internally since it does not pass through the gastro-intestinal tract. Logically, medicaments dispensed from aerosols should be able to penetrate tracts more effectively than ordinary sprays. It is quite possible, too, that the degree of penetration can be correlated with the particle size of the active constituents.

According to Walter C. Beard, Jr., Risdon's director of research, "There are now available, or in the development stages, valves and actuators to facilitate the pressurized application of practically every type of product presently being administered with swabs, inhalers, insufflators, injection type applicators, squeeze bottles or old-fashioned spoon and drinking glass."★

Carbide Names Analyst

Appointment of Robert D. Stewart as market analyst in the Market Research Department has been announced by Union Carbide Chemicals Co., division of Union Carbide Corp., New York. Mr. Stewart's assignment will be in the area of elastomeric products, including vinyl and urethane foams.

Editor's Mailbag

(*From Page* 20)

zine sometime ago, since January 1957 Roux Distributing Co. has not been in existence and its manufacturing functions were taken over by Roux Laboratories, Inc.

We trust that a forthcoming issue of *Aerosol Age* will rectify these errors.

Mrs. Marion Dundes
Advertising Manager
ROUX LABORATORIES, INC.
New York

•

To the Editor:

Some time ago you were kind enough to run a brief story mentioning that we manufacture a small aerosol fire extinguisher. At the time we were making just a 12-ounce size, but have since added 18 and 34-ounce size containers to our line. We have also increased our product line to include a chrome coating, a special formulation penetrating oil, a spray to protect windows against ice and humid air, a sun spray, an insecticide, and cellulose and synthetic paints.

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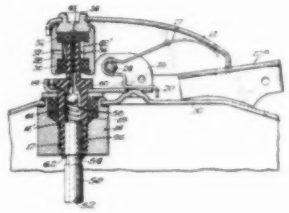
New Aerosol Patents

Listed below is a brief review of recent patents pertinent to the aerosol and related industries.

Complete copies of these patents may be obtained by writing to the Commissioner of Patents, U. S. Patent Office, Washington 25, D. C., and remitting 25 cents for each copy desired.

2,899,108. SELF-CLEANING AND METERING LIQUID SPRAY VALVE STRUCTURE. Issued August 11 to Robert S. Knapp, St. Louis, assignor to Knapp-Monarch Co., St. Louis.



In a spraying valve structure, a valve stem having a flow passage therethrough terminating at its one end in a valve seat and at its other end in a port adapted to communicate with a reservoir of liquid under pressure, a sealing valve mounted for movement relative to said valve seat to open and close the valve seat end of said flow passage and being normally biased toward said valve seat to close said flow passage, a cleaning pin carried by said sealing valve and extending into said flow passage for reciprocating movement therethrough, a metering valve normally spaced from the port end of said flow passage when the sealing valve is normally seated against said valve and also being normally biased toward the said port end of said flow passage and tending to close said port, said cleaning pin being greater in length than said flow passage so as to extend through said port to engage said metering valve and maintain it in said spaced relation to said port when said sealing valve is in its normally closed position, the spacing of said metering valve from the port end of said flow passage being substantially equal to the distance of the sealing valve from the valve seat when the sealing valve is in open position, so that upon movement of said sealing valve to an open position said cleaning pin will be withdrawn from said port and said metering valve will be free for movement to close said port, whereby dispensing flow of liquid, cleaning movement of said cleaning pin, and metering movement of said metering valve are effected simultaneously.

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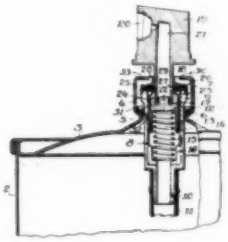
2,900,114. AEROSOL VALVE MOUNTING. Issued August 18 to Ernest J. Utz, Chicago, assignor to Aerosol Research Co., Forest Park, Ill.

An aerosol valve assembly comprising a tubular shell having an upstanding side wall and an outer peripheral bead on said side wall adjacent to the upper edge thereof, a valve body movable in said shell, a valve seating gasket positioned in the path of said valve body against the top of the side wall of said shell, said gasket sealing against



said valve body, a ferrule having a top wall overlying and engaging said gasket, a depending circumferential side wall on said ferrule, and an inwardly extending peripheral bead on said side wall of said ferrule, said bead on said side wall of said ferrule being interengaged with the under side of the bead on the side wall of said shell to secure the valve parts together in operative assembled relation, to provide a self-sustaining valve assembly, and to maintain said gasket against the top of said side wall of said shell.

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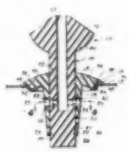
2,901,153. DISPENSING VALVE. Issued August 25 to Leonard M. Collins, Hollywood, Calif., assignor to Pressure Dispensers, Inc., Los Angeles.



A dispensing valve for a top opening container which comprises: a sleeve affixed to the opening of said container and having a bore formed therein; an inlet port forming a passageway between the interior of said container and said bore; a dispensing closure member slidably movable within said bore from a first position to a second position, and press-fitted within said bore for at least a portion of its travel in the region of said second position; a dispensing passage formed within said closure member and adapted to communicate with said inlet port when said closure member is in said first position, said inlet port being blocked when said closure member is in said second position, said closure member being positively sealed within said bore when said closure member is in said second position to thereby prevent leakage of the material to be dispensed from within said container into said dispensing passage, by means of the press-fit of said bore and closure member in the region of said second position.

2,897,526. NOZZLE-APPLICATOR FOR SHAVING LATHER. Issued August 4 to Norman Leslie Dootson, San Francisco, assignor of one-third to Winifred M. Colombo, San Francisco.

An applicator for pressurized shaving lather or the like comprising a flexible soft compact resilient substantially flat pad adapted for spreading the lather and provided with vent means extending through from top to bottom of the pad, a backing plate substantially co-extensive with and normally in contact with the bottom of said pad and to which plate said pad is secured

and sealed around its margins, port means extending through said backing plate in offset relation to said vent means, an unsealed area providing lateral passage for the lather between said vent and port means, and a second plate spaced rearward of said backing plate marginally secured and sealed thereto to form a chamber therebetween, a hollow neck extension projecting rearwardly from said chamber and providing a communication to the outlet of a container.

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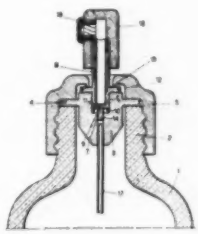
2,898,012. SPRAYING VALVE FOR CONTAINERS OF SUBSTANCES MIXED WITH A VOLATILE PROPELLANT. Issued August 4 to Franco Galeazzi, Milan Italy.



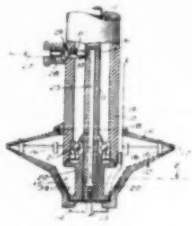
A spraying valve for containers of substances mixed with a volatile propellant, comprising a one-piece resilient body fitted into the mouth of a container and having means for positioning it in place, said body having a vertical bore extending therethrough and through its upper and lower ends, a dipping tube fitted in the lower end of the bore and extending downwardly into the container, said upper end of the bore being counter-bored, a tubular outlet member seated in the counterbore and having a closed lower end provided with an inlet means and having a solid depending valve projection fitted in the bore and closing off the bore to control the flow of the sub-

stance therethrough, said means for positioning the body in place including a laterally outstanding flange on the body adapted to seat on the outer end of the mouth and said tubular member having a laterally outstanding flange adapted to seat on the upper end of the body and a cap member adapted to be fitted onto the container and having inwardly extending vertically spaced shoulders adapted to seat on the flanges to hold the body in place and the tubular member in the body.

•

2,901,177. SPRAYING APPARATUS. Issued August 25 to Edward O. Norris, Westport, Conn.

A spraying apparatus for ionizing and atomizing a sprayable material comprising an elongated tubular holder, a shaft rotatably mounted in said holder, a rotary spray head of electrical insulating material having an outwardly flaring film supporting surface terminating in a peripheral discharge edge, a feed conduit secured to said holder in position to feed sprayable material onto the central portion of said surface, and spray head being secured to said shaft for rotation thereby at a rate to cause said material to flow outwardly in a thin film over



said surface by centrifugal force and be discharged outwardly from said peripheral discharge edge, a film contacting electrode disposed in fixed position in the flow path of said film with the entire film contacting portion of said electrode being disposed a substantial distance inwardly from said peripheral discharge edge, to thereby provide an annular ring shaped insulating area of said surface between said electrode and said peripheral discharge edge over which said film flows after ionization, and electrical connecting means by which an ionizing potential is applied to said electrode.

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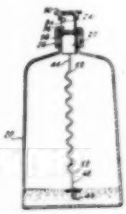
2,900,116. DISPENSING DEVICE. Issued August 18 to Frederick W. Lutz, Garden City, N. Y., assignor to Leetronics, Inc., Brooklyn.



A liquid dispenser comprising a container for the liquid to be dispensed and including liquid outlet means to permit said liquid to flow therethrough, gravity actuable closure means engageable with said outlet means to substantially restrict flow of liquid through said outlet means when said container is in an inverted position, and closure delay means to delay said engagement of said liquid outlet means and said closure means, said closure delay means including a closure carrier disposed within said container, said closure carrier including an elongated rod-like element in sinusoidal form and a closure element positioned thereon and confined for movement therealong on said elongated element from a rest position to a position where said closure means engages said outlet means when said container is inverted.

Trade Mark Applications

Applications for registration of the following trademarks were published in recent issues of the *Official Gazette* of the U. S. Patent Office. In not all cases are there strictly aerosol trademarks, however, many of the products listed below come within the category of those for which a possible future use in aerosols is foreseen.

BLISTONE, for spray ointment for burns. Filed March 17 by Purepac Corp., New York, N. Y., claiming first use March 2 of same year.

CUPIDON, for deodorants, anti-perspirants, colognes, and toilet waters. Filed Oct. 16, 1957 by Regal Stationery Co. Ltd., Toronto, reporting first use in Canadian registration dated April 10.

RANDI, for cosmetics in pressurized containers—namely, hair grooming preparations, hair setting preparations, hand lotion, body lotion, after shave lotion, shaving cream, deodorant, and nail polish drier. Filed Aug. 2, 1957 by Randi Distributing Co., Chicago, reporting first use March 26 of same year.

SENTOR, for pharmaceutical preparation useful in the treatment of acne. Filed Oct. 27, 1958 by Chemway Corp., Mountain View, N. J., with first use reported as May 20 of same year.

BLUE SPARK, for shaving cream. Filed March 30 by The House for Men, Inc., Chicago, reporting first use March 2.

CHANTAGE, for perfume. Filed Oct. 6, 1958 by Antar Export Corp., New York, claiming first use Sept. 5 of same year.

STAPH-O-SOL, for aerosol sterilizer. Filed Feb. 20 by Cook Chemical Co., Kansas City, reporting first use Feb. 18.

ROOM MATE, for spray type room deodorizer and air refresher. Filed March 19 by Regal Chemical Corp., Brooklyn, with first use reported for Oct. 14 of last year.

AEROMAGIC, for aerosol packaged tar remover, and dust laying compounds comprising an oil base dust spraying composition. Filed Nov. 12, 1958 by General Aerosols Inc., Shelton, Conn., assignee to Reed Research Corp., and reporting first use Sept. 24, 1958.

OPTICURE, for medicinal spray for prevention and treatment of pink eye in cattle and sheep. Filed April 6 by William Cooper & Nephews, Inc., Chicago, with first use reported as March 1958.

Professional Directory

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- *label claims*
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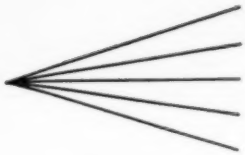

CLASSIFIED ADVERTISING

Address all classified replies to Box Number c/o *Aerosol Age*, PO Box 31, Caldwell, N. J. Rates for "Help Wanted" advertisements are 20¢ per word; minimum charge $3.00. Rate for individuals seeking employment is 5¢ per word, $1.00 minimum. Advertisements of new machinery, products and services accepted at the rate of $10.00 per column inch. Minimum space, one inch. Copy closing date, 10th of preceding month. *Checks must accompany all orders.*

SITUATIONS WANTED:

EXECUTIVE presently employed by aerosol manufacturer wishes new position with aggressive aerosol company. Prefer Chicago area, however will relocate for opportunity. Ten years experience in aerosol manufacturing and filling sales. 36 years old. Married. Available on short notice. Resume supplied upon request. Please reply to Box 191, c/o Aerosol Age.

HELP WANTED:

PLANT SUPERINTENDENT—Experienced manager required for complete aerosol line. Exceptional opportunity for an aggressive energetic man to get in on ground floor. Send complete resume and salary requirements to Box 193, c/o Aerosol Age.

FOR SALE:

1 MODEL REF752 MOJONNIER REFRIGERATION UNIT, in excellent condition, with 2 Evaporators, 7½ ton, 25 h.p. motor, slightly used, with a cooling tower. Address Box 192, c/o Aerosol Age.

Revlon Names Fread VP

Sidney Fread has been appointed vice-president and treasurer of Revlon, Inc., New York, a leading aerosol product marketer. He was previously connected with Joseph E. Seagram & Sons and International Latex.

Fleuroma Names Goldschrafe

Fleuroma, Inc., creators of fine Perfumes and Aromatic Specialties, announces the appointment of Carl Goldschrafe as mid-western sales representative.

Formerly Director of Packaging for Helene Curtis Industries, Inc., he has established a Fleuroma sales office at The Pittsfield Building, 55 East Washington, Chicago 2, Ill.

Prior to being with Helene Curtis Mr. Goldschrafe had been associated for a number of years with another leading cosmetics manufacturer.

FOR LEASE
MODERN AEROSOL PACKAGING PLANT

FACILITIES

Fireproof space equipped with recently installed, extra-safe pressure fill and cold fill aerosol production lines capable of turning out 80,000 completed units per shift. Plentiful labor supply of skilled and semi-skilled workers.

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Storage for bulk concentrate, hydrocarbon and fluorinated hydrocarbon propellents. Receiving facilities for tank truck or rail tank car are easily accessible for quick, safe discharge near production line.

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Plant located in Scranton, Pa., focal point of Federal Highway Program. Railroad siding at plant, 60 trucking lines, 4 airlines available.

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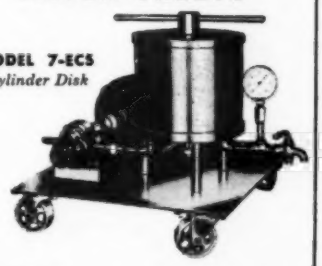

WRITE FOR TYPICAL PRODUCT APPLICATION CHARTS & GUIDE

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18 FAIR ST., KINGSTON, N. Y.
Branch Office & Showroom New York City

Still Available

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of Interest to
THE AEROSOL INDUSTRY

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119 pages, $10.

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Supplying internationally for aerosols

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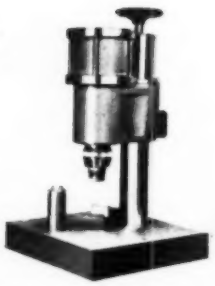
- Production Machines, All Types
- Formulations and Concentrates
- Plant Layout — Consultation

1. Laboratory Clincher DP-104 Inter-changeable Tools for Metal Cans and Glass Bottles.

2. Laboratory and Small-Run Pressure Loader DP-110

3. Propellant Pump WM-DP 385 Fully automatic, compressed air operated. Empties cylinders, mixes propellants, guarantees liquefaction.



4. Valve Clincher WM-DP 350 Semi-automatic, compressed air operated. Capacity: 28-30 per min.

5. Nitrogen Gasser WMP-DP 390 Semi-automatic, compressed air operated. Capacity: 28-30 per min.

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Kafertaler Strasse 162
Mannheim, Germany

Sales Representative:

druk pak, inc.
Merkurstrasse 36
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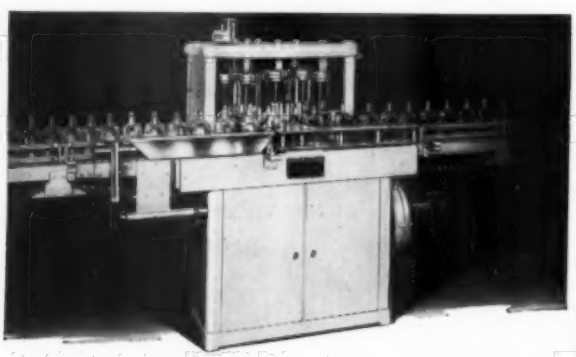
Switzerland



Safeguard the Operation of Aerosol Valves

SANITAIR
AUTOMATIC
AIR CLEANER

Used by the leaders in aerosol packaging

AIR CLEANING CONTAINERS is your most worthwhile consideration. *Positive* removal of any speck of foreign matter is vital to the operation of each valve. Air cleaning also safeguards the quality of your product.

The Sanitair Automatic Air Cleaner assures positive cleaning action at all speeds. Containers are completely inverted *before*, *during* and *after* the air tubes enter. Naturally, no foreign matter can remain in an open inverted container after it has been blasted with compressed air. Write today for the "Sanitair Bulletin."

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OVER THE TRANSOM

SUCCESS of aerosol technical clinics, described in news section of this issue, could herald a continuing series of such clinics (with future ones being directed to food, pharmaceuticals, toilet goods, and other specialized activities not directly connected with chemical specialties). At this point success of the clinics seems assured, with registration applications coming in from as far away as Japan and Europe.

* * *

Max Factor & Co., a leading West Coast (and national) aerosol product marketer, is studying the possibility of a "large expansion" in factory space in the Eastern United States. This was revealed last month by Max Factor, Jr., president of the firm.

* * *

This month's example of a ridiculous editorial conclusion about aerosols based on insufficient information comes from the Sept. 4 issue of *Marketing*, Canadian trade paper printed in Toronto. Reporting on a DuPont of Canada survey of consumer acceptance of aerosol products, the article concludes: "There's not much use of suntan lotion and water repellents in aerosol form, mainly owing to insufficient knowledge about these products." It's a good thing this paper didn't have a chance to voice an opinion before hair sprays and room deodorants could achieve consumer acceptance!

Proponents of the heavily attacked Fair Trade Bill, which was held up in Senate Committee and apparently sidetracked for this session of Congress, are currently turning their efforts to another approach. An attempt is being made to put through remedial legislation in states where the courts have thrown out previously-enacted fair trade legislation.

* * *

Despite the glowing reports of the reception afforded U.S. aerosols at the Poznan Trade Fair and the U.S. Fair in Moscow, Herbert Stein, writing in the September issue of *Beauty Fashion*, reports that aerosol perfume sprays, imported to Moscow from East Germany, have never caught on. "According to one cosmetician, it is because Soviet women are appalled at the waste—the pretty container must be thrown away after the contents are used up."

* * *

Mennen, which quite often gives evidence of imagination and initiative in advertising its shave cream, will launch a $20,000 "Lucky Shavers Sweepstakes Contest" in October. A full-page advertisement in *Life*, *Saturday Evening Post* and *This Week* will launch the contest, which will feature a 15-cent reduction coupon and an entry blank at the bottom of the page. Though the consumer is not required to purchase any Mennen product to win part of the $20,000, it's a pretty safe bet that the contest will bring good results in the sales column.

Salvatore Noto, technical director of Sun-Lac, Inc., with the trophies he won at the recent Aerosol Invitational Golf Tournament. For his low net score he wins permanent possession of the smaller cup and one-year-possession of the large trophy.

* * *

A *sensationally* successful aerosol product called "Delay" packaged by Old Empire, Inc., Newark, N.J. custom filler, is the talk of the industry, at least in the East. John deElorza, Old Empire president, reports that he'll send a sample to anyone in the industry requesting one.

* * *

Before Christmas the talk of the toilet goods industry will undoubtedly be Angelique, Inc., Wilton, Conn., which this month will introduce a new aerosol device for spraying metered doses of its perfume and cologne line from automatic dispensers *outside* department stores. Idea behind it is to interest people entering the store and passers-by in Angelique's cologne line, particularly "Black Satin." Aero-Chem Fillers is doing the custom filling on the containers, which are 132-cubic-inch Tube Manifold units equipped with VCA metering valves. Actuating unit, same as that presently used for timed dispensing of insecticides (*Aerosol Age*, March, 1959, page 20) and pharmaceuticals, was developed by Synchro-Mist Controls, Inc., New York.

* * *

A big aerosol consumer promotion campaign, to study and document how demonstration can help sell aerosols is slated for a major Eastern supermarket this month by the Aerosol Division of the CSMA. The demonstration is part of the Aerosol Division's 1959-1960 aerosol publicity program.